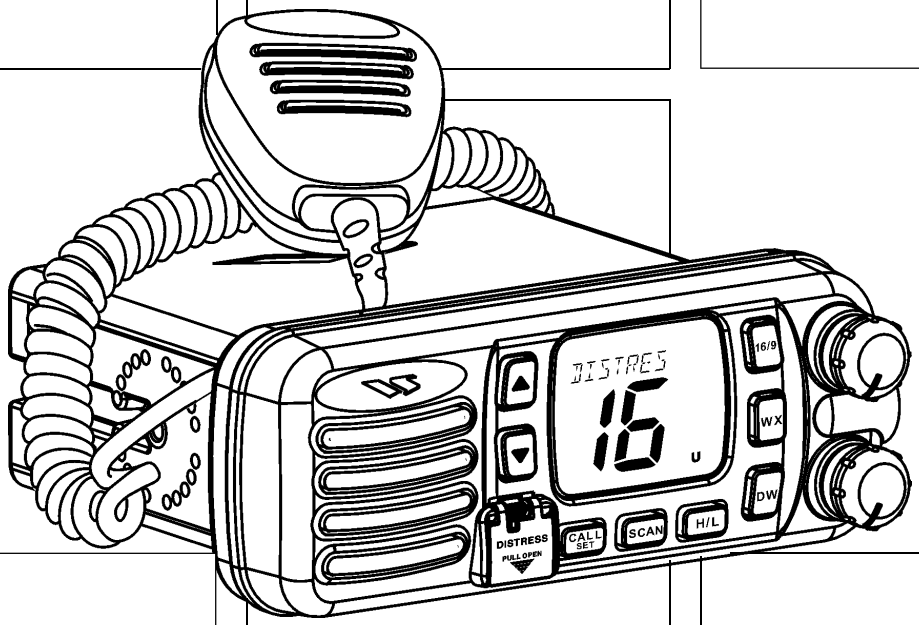
STANDARD HORIZON

25 Watt VHF/FM Marine Transceiver

QUEST GX1255S

SERVICE MANUAL



EM001N90A

Specifications

GENERAL

Channels:	All USA, International and Canadian
Input Voltage:	13.8 VDC ±20%
Current Drain:	Standby 0.5 A Receive 1.5 A Transmit 5.0 A (Hi); 1.5 A (Lo)
Dimensions:	2-1/2" H x 6-5/16" W x 6-5/16" D (64 H x 160 W x 160 D mm)
Flush-Mount Dimensions:	2" H x 5-5/16" W x 5-1/8" D (50 H x 136 W x 130 D mm)
Weight:	2.2 lbs (1 kg)

TRANSMITTER

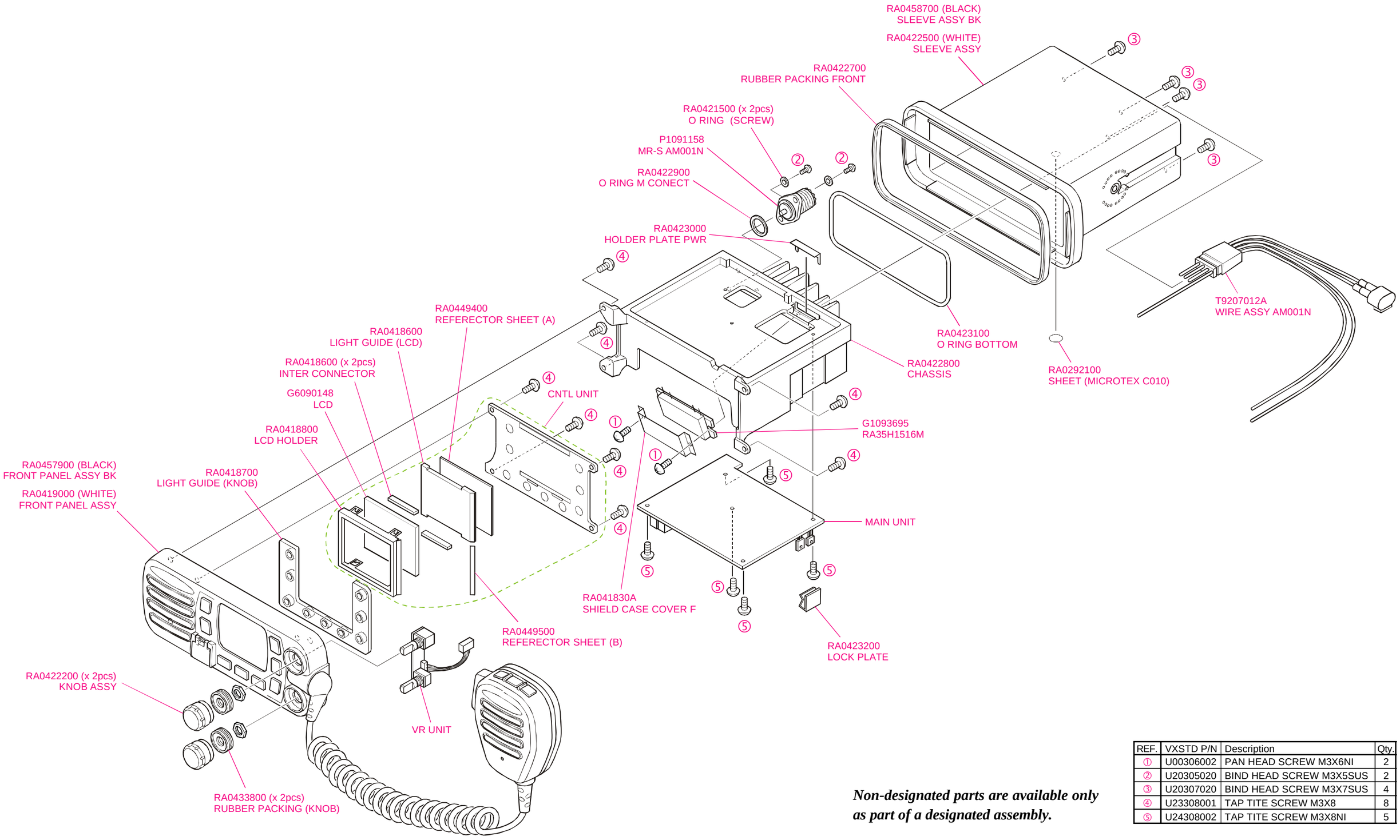
Frequency Range:	156.025 to 157.425 MHz
RF Output:	25 W (Hi); 1 W (Lo)
Conducted Spurious Emissions:	80 dB (Hi); 60 dB (Lo)
Audio Response:	within +1/–3 of a 6 dB/octave (pre-emphasis characteristic at 300 to 3000 Hz)
Audio Distortion:	5 %
Modulation:	16K0G3E, for DSC 16K0G2B
Frequency Stability:	±0.0005% (–20 °C to +50 °C)
FM Hum and Noise:	50 dB

RECEIVER

Frequency Range:	156.050 to 163.275 MHz
Sensitivity:	20 dB Quieting: 0.35 µV 12 dB SINAD: 0.25 µV Squelch Sensitivity (Threshold): 0.13 µV
Modulation Acceptance Bandwidth:	±7.5 kHz
Selectivity:	Spurious and Image Rejection: –70 dB Intermodulation and Rejection at 12 dB SINAD: –70 dB
Audio Output:	4 W
Audio Response:	within + 2/–8 of a 6 dB/octave (de-emphasis characteristic at 300 to 3000 Hz)
Frequency Stability:	±0.0005 % (–20°C to +50°C)
Channel Spacing:	25 kHz
DSC Format:	RTCMSC101

Performance specifications are nominal, unless otherwise indicated, and are subject to change without notice.

ExplodCircuit Descriptioned View & Miscellaneous Parts

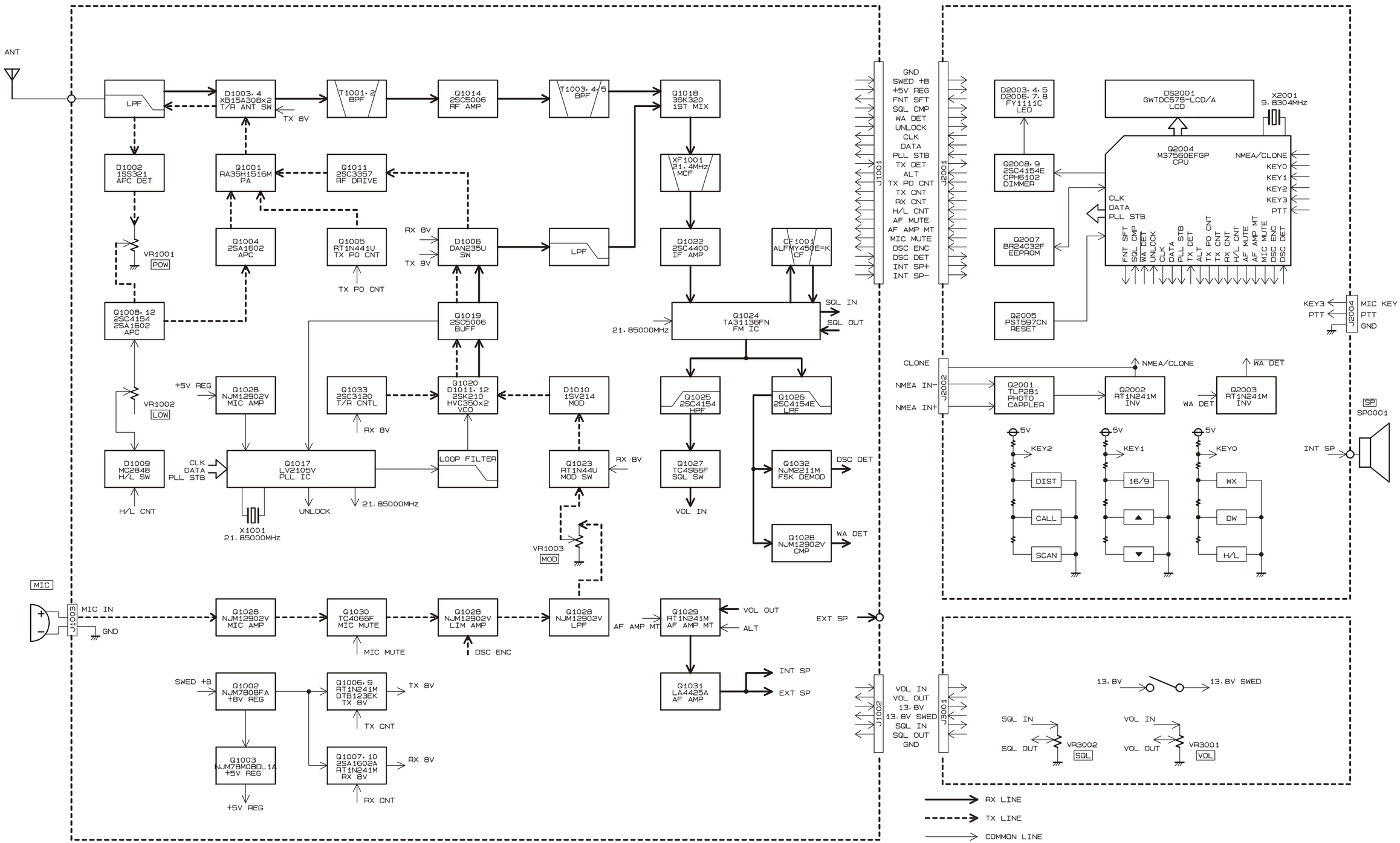


Non-designated parts are available only as part of a designated assembly.

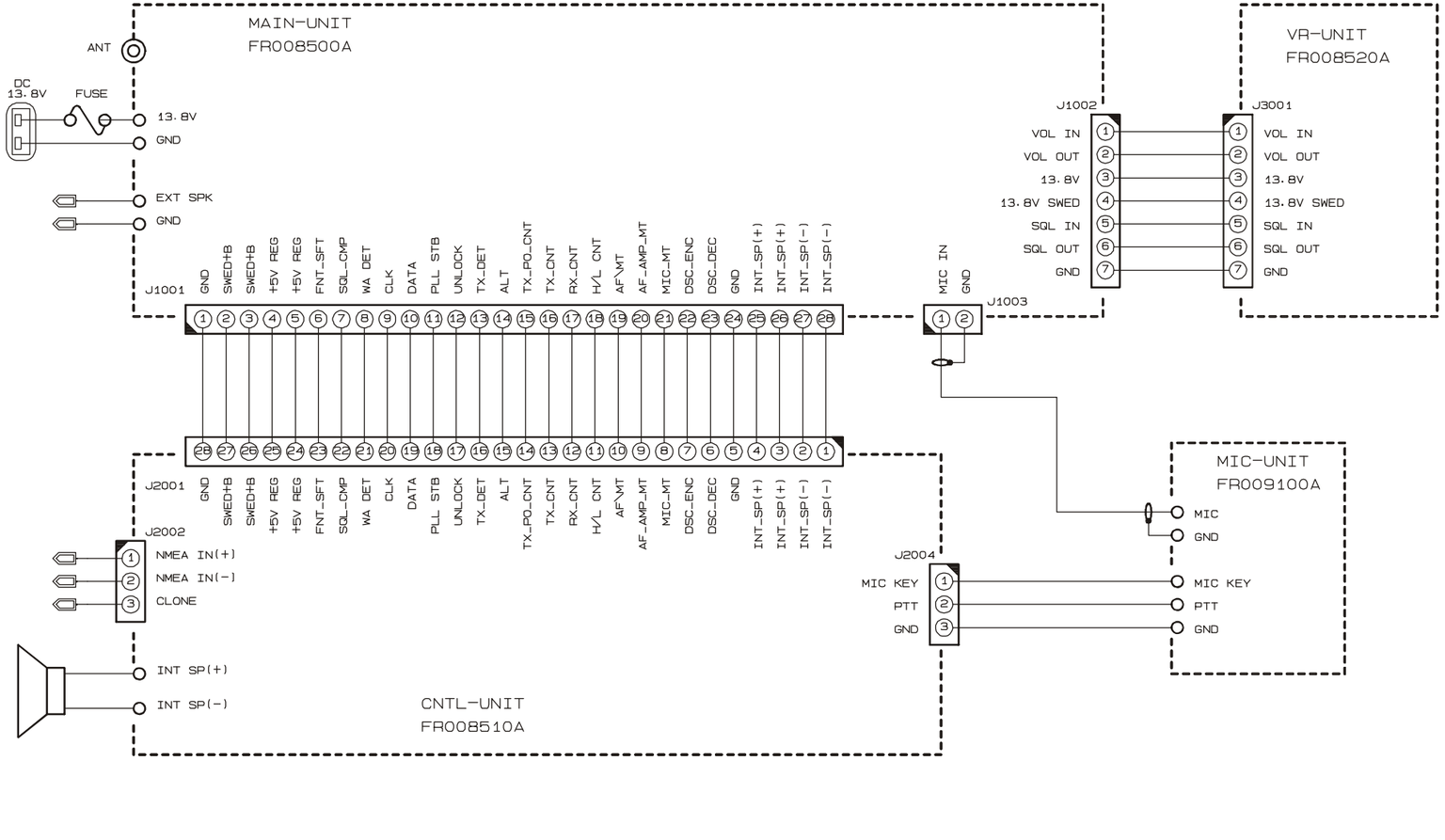
REF.	VXSTD P/N	Description	Qty.
①	U00306002	PAN HEAD SCREW M3X6NI	2
②	U20305020	BIND HEAD SCREW M3X5SUS	2
③	U20307020	BIND HEAD SCREW M3X7SUS	4
④	U23308001	TAP TITE SCREW M3X8	8
⑤	U24308002	TAP TITE SCREW M3X8NI	5

Note

Block Diagram



Connection Diagram



Reception and transmission are switched by "RX-CNTL" and "TX-CNTL" lines from the CNTL Unit. The receiver uses double-conversion superheterodyne circuitry, with a 21.4 MHz 1st IF and 450 kHz 2nd IF. The 1st local is produced by a PLL synthesizer, yielding the 21.4 MHz 1st IF. The 2nd local uses a 21.850 MHz crystal oscillator, yielding the 450 kHz 2nd IF. The 2nd mixer and other circuits use a custom IC to convert and amplify the 2nd IF and detect FM to obtain demodulated signals. During transmit, the PLL synthesizer oscillates at the desired frequency directly, for amplification to obtain RF power output. During transmit, voice modulation is applied to this synthesizer. Transceiver functions, such as TX/RX control, PLL synthesizer settings, and channel programming, are controlled using the MPU.

Receiver

Incoming RF signals from the antenna connector are delivered to the RF Unit, and pass through a low-pass filter (LPF) consisting of coils and capacitors, and antenna switching diodes **D1003** and **D1004** (both **XB15A308**) for delivery to the receiver front end.

Signals within the frequency range of the transceiver are then passed through a bandpass filter consisting of T1001 and T1002 before RF amplification by **Q1014** (**2SC5006**).

The amplified RF is then bandpass filtered again by T1003, T1004, and T1005, to ensure pure in-band input to 1st mixer **Q1018** (**3SK320**).

Buffered output from the VCO Unit is amplified by **Q1016** (**2SC5006**) and bandpass filtered by L2012, C1072, and C1078, to provide a pure 1st local signal between 134.65 and 140.625 MHz for delivery to the 1st mixer.

The 21.4 MHz 1st mixer product then passes through dual monolithic crystal filter **XF2001** (±6.5 kHz BW), and is amplified by **Q1022** (**2SC4400-3**) and delivered to the input of the FM IF subsystem IC **Q1024** (**TA31136FN**). This IC contains the 2nd mixer, 2nd local oscillator, limiter amplifier, FM detector, noise amplifier, and squelch gates.

The 2nd local in the IF-IC is produced from crystal **X1001** (21.850 MHz), and the 1st IF is converted to 450 kHz by the 2nd mixer and stripped of unwanted components by ceramic filter **CF1001**.

After passing through a limiter amplifier, the signal is demodulated by the FM detector. Demodulated receive audio from the IF-IC is amplified by **Q1025** (**2SC4154E**), then the signal is through the AF Mute switch **Q1027** (**TC4S66F**).

After volume adjustment by the AF power amplifier **Q1031** (**TDA2003**), the audio signal is passed to the external Speaker terminal in the accessory cable and 16-Ohm internal loudspeaker.

PLL Synthesizer

The 1st LO maintains stability from the PLL synthesizer by using a 21.850 MHz reference signal from crystal **X1001**. PLL synthesizer IC **Q1017** (**LV2105V**) consists of a prescaler, reference counter, swallow counter, programmable counter, a serial data input port to set these counters based on the external data, a phase comparator, and a charge pump.

The PLL-IC divides the 21.850 MHz reference signal by 874 using the reference counter (25 kHz comparison frequency). The VCO output is divided by the prescaler, swallow counter and programmable counter. These two signals are compared by the phase comparator and applied to the charge pump.

A voltage proportional to their phase difference is delivered to the low-pass filter circuit, then fed back to the VCO as a voltage with phase error, controlling and stabilizing the oscillating frequency. This synthesizer also operates as a modulator during transmit.

The VCO is comprised of **Q1020** (**2SK210GR**) and **D1011**/**1012**, (both **1SV230**); it oscillates at 21.4 MHz during receive, and at the fundamental frequency during transmit, with direct frequency-modulation using varactor diode **D1009** (**1SV214**). The VCO output passes through buffer amplifier **Q1019** (**2SC5374**), and is amplified by **Q1016** (**2SC5374**) to obtain stable output. The VCO DC supply is regulated by **Q1015** (**2SC4154E**). Synthesizer output is fed to the 1st mixer by diode switch **D1007** (**DAN235U**) during receive, and to drive amplifiers **Q1013** (**2SC5227-4**), **Q1011** (**2SC3357**), and **Q1001** for transmit.

The reference oscillator feeds the PLL synthesizer.

Transmitter

Voice audio from the microphone is delivered via the **MIC** connector to the RF Unit. After passing through amplifier **Q1028** (**NJM2902M**), a pre-emphasis network, limiter (IDC: instantaneous deviation control), and LPF **Q1028** (**NJM2902M**), the audio is adjusted for optimum deviation level and delivered to the next stage.

Voice or DSC(Digital Selective Calling) encode signal inputs from the LPF **Q1028** is8 FM-modulated in the VCO of the synthesizer. Synthesizer output, after passing through diode switch **D1006** (**DAN235U**), is amplified by driver **Q1013** (**2SC5227**), **Q1011** (**2SC3357**), and RF power amplifier **Q1001** (**RA35H1516M**) to obtain full RF output.

The RF energy then passes through antenna switch **D1003** and a low-pass filter circuit and finally to the antenna connector.

RF output power from the final amplifier is sampled by C1006 and C1011 and is rectified by **D1002** (**1SS321**). The resulting DC is fed through Automatic Power Control-

Circuit Description

lers **Q1004** (**2SA1602A**), **Q1008** (**2SC4154E**) and **Q1012** (**2SA1602A**) to transmitter RF power amplifier **Q1001**, thus providing positive control of the power output.

Generation of spurious products by the transmitter is minimized by the fundamental carrier frequency being equal to the final transmitting frequency, modulated directly in the transmit VCO. Additional harmonic suppression is provided by a low-pass filter consisting of coils and capacitors, resulting in more than 70 dB of harmonic suppression prior to delivery of the RF energy to the antenna.

DSC Encoder/ Decoder

Encoder

The DCS (Digital Selective Calling) encode signal which D/A converted in the 8-bit MPU IC **Q2003** is fed through the low-pass filter **Q1028** on the RF Unit to the VCO.

Decoder

The receiving DCS code is demodulated by the FM IC **Q1024**, then fed through the low-pass filter **Q1026** (**2SC4154E**) to the DCS Decoder IC **Q1032** (**NJM2211M**) which the receiving DCS code is decoded. The decoded DCS signal delivered to the 8-bit MPU IC **Q2003**

1050 Hz Weather Alert Decoder

1050Hz Weather Alert signals are demodulated on the CNTL Unit, and are applied to low-pass filter **Q1026** (**2SC4154E**), and pass thorugh the limiter comparator **Q1028** (**NJM2902M**).

MPU

Operation is controlled by 8-bit MPU IC **Q2003** (**M37560M**). The system clock uses a 9.8304 MHz crystal for a time base. IC **Q2004** (**PST597CN**) resets the MPU when the power is on, and monitors the voltage of the regulated 5V power supply line.

EEPROM

The EE-PROM retains TX and RX data for all memory channels , prescaler dividing, IF frequency, local oscillator injection side, and reference oscillator data.

The **GX1255S** has been carefully aligned at the factory for the specified performance across the marine band.

Realignment should therefore not be necessary except in the event of a component failure. All component replacement and service should be performed only by an authorized Standard Horizon representative, or the warranty policy may be voided.

The following procedures cover the sometimes critical and tedious adjustments that are not normally required once the transceiver has left the factory. However, if damage occurs and some parts are replaced, realignment may be required. If a sudden problem occurs during normal operation, it is likely due to component failure; realignment should not be done until after the faulty component has been replaced.

We recommend that servicing be performed only by authorized Standard Horizon service technicians who are experienced with the circuitry and fully equipped for repair and alignment. Therefore, if a fault is suspected, contact the dealer from whom the transceiver was purchased for instructions regarding repair. Authorized Standard Horizon service technicians realign all circuits and make complete performance checks to ensure compliance with factory specifications after replacing any faulty components.

Those who do undertake any of the following alignments are cautioned to proceed at their own risk. Problems caused by unauthorized attempts at realignment are not covered by the warranty policy. Also, Standard Horizon, a division of VERTEX STANDARD, must reserve the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners. Under no circumstances should any alignment be attempted unless the normal function and operation of the transceiver are clearly understood, the cause of the malfunction has been clearly pinpointed and any faulty components replaced, and the need for realignment determined to be absolutely necessary.

The following test equipment (and thorough familiarity with its correct use) is necessary for complete realignment. Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy. While most steps do not require all of the equipment listed, the interactions of some adjustments may require that more complex adjustments be performed afterwards. Do not attempt to perform only a single step unless it is clearly isolated electrically from all other steps. Have all test equipment ready before beginning, and follow all of the steps in a section in the order presented.

Required Test Equipment

- ❒ RF Signal Generator with calibrated output level at 200 MHz
- ❒ Deviation Meter (linear detector)
- ❒ AF Millivoltmeter
- ❒ SINAD Meter
- ❒ Inline Wattmeter with 5% accuracy at 200 MHz
- ❒ Regulated DC Power Supply: 13.8 VDC, 10A
- ❒ 50-ohm Non-reactive Dummy Load: 30W at 200 MHz
- ❒ Frequency Counter: >0.1 ppm accuracy at 200 MHz
- ❒ AF Signal Generator
- ❒ DC Voltmeter: high impedance
- ❒ VHF Sampling Coupler
- ❒ AF Dummy Load: 4 Ohms, 10 W
- ❒ Oscilloscope
- ❒ Spectrum Analyzer
- ❒ GX1260S Marine Transceiver

Alignment Preparation & Precautions

A dummy load and inline wattmeter must be connected to the main antenna jack in all procedures that call for transmission. Correct alignment is not possible with an antenna.

After completing one step, read the following step to determine whether the same test equipment will be required. If not, remove the test equipment (except dummy load and wattmeter, if connected) before proceeding.

Correct alignment requires that the ambient temperature be the same as that of the transceiver and test equipment, and that this temperature be held constant between 68 °F and 86 °F (20 °C and 30 °C). When the transceiver is brought into the shop from hot or cold air it should be allowed some time for thermal equalization with the environment before alignment. If possible, alignments should be made with oscillator shields and circuit boards firmly affixed in place. Also, the test equipment must be thoroughly warmed up before beginning.

Note: Signal levels in dB referred to in this procedure are based on 0 dBµ = 0.5 µV (closed circuit).

Alignment

Overview of Test Mode

The test mode has been build in the microprocessor in order to adjust and comfirm the performance of transceiver.

The purpose is to adjust transceiver simply and to confirm the performance of transceiver smoothly.

(a) Expansion channels “EXP01 - EXP06” will be set as follows:

DISPLAY	RX FREQUENCY	TX FREQUENCY	SCAN
EXP01	156.050 MHz	156.050 MHz	X
EXP02	—	157.425 MHz	X
EXP03	163.275 MHz	—	X
EXP04	155.050 MHz	155.050 MHz	O
EXP05	162.025 MHz	162.025 MHz	X
EXP06	163.575 MHz	158.975 MHz	X
WX10	163.275 MHz	—	O

(B) In CH70, ever time you are in transmit mode, (every time you press PTT), the following test tone can be outputted:
1st transmission: 1300 Hz
2nd transmission: 2100 Hz
3rd transmission: Synthetic tone of 1300 Hz and 2100 Hz
4th transmission: Return to 1st transmission

(C) Scan the channels between WX10 and EXP04 in the SCAN mode.

Starting Test Mode

Confirm that **PWR/VOL** switch is off, and short the TEST points (**JP1001**). Turn on the **PWR/VOL** switch while press and holding the [**DIST**] and [**DW**] keys.

Confirmation of VCO

— Confirmation —

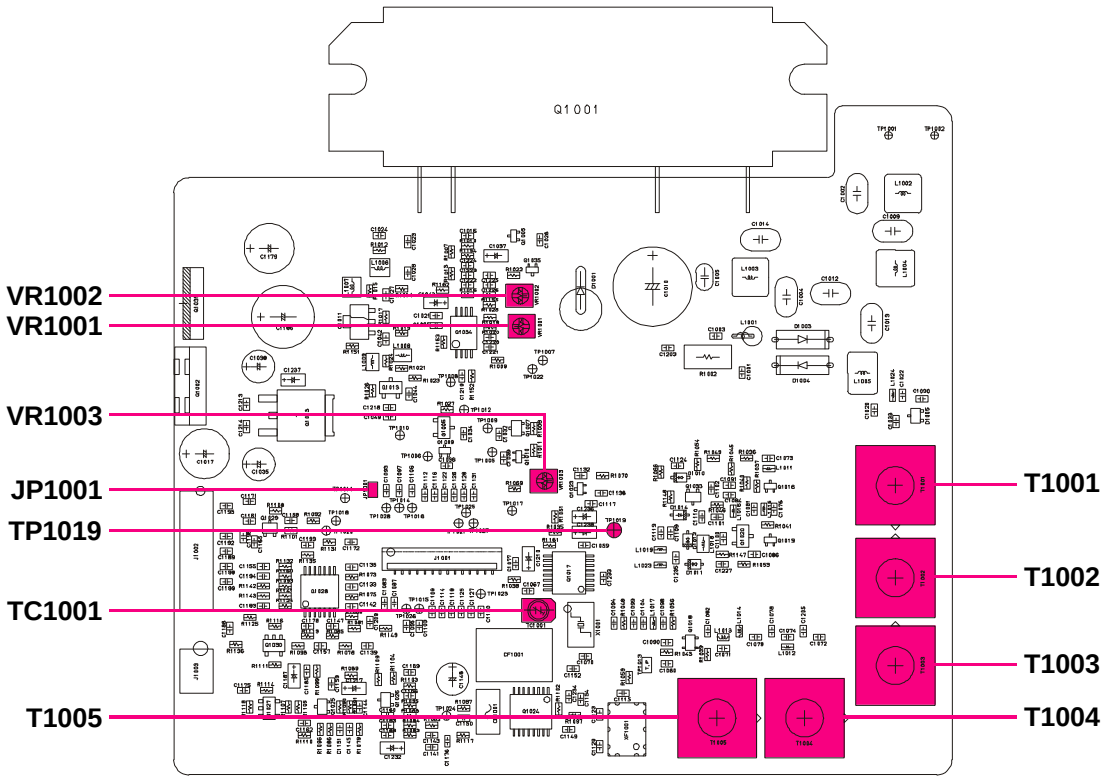
- ❒ Connect the DC voltmeter to the test point (**TP1019**).
- ❒ Use the [▲(**UP**)]/[▼(**DOWN**)] key to set the channel to **EXP04**, confirm that voltage on the test point is over 1.0 V in the receive and transmit mode.
- ❒ Use the [▲(**UP**)]/[▼(**DOWN**)] key to set the channel to **EXP05**, confirm that voltage on the test point is below 5.0 V in the transmit mode.
- ❒ Use the [▲(**UP**)]/[▼(**DOWN**)] key to set the channel to **EXP06**, confirm that voltage on the test point is below 5.0 V in the receive mode.

Adjustment and Confirmation of Transmit Power

Adjust power at high and low in the transmit mode, and confirm power in the specified bandwidth.

— Adjustment —

- ❒ Connect the wattmeter and 50-ohm dummy load to the antenna jack.
- ❒ Use the [**H/L**] key to set transceiver to ***high power*** and set the channel to **CH16**. With the **PTT** switch pressed, adjust **VR1001** so that RF power is 25 W.
- ❒ Use the [**H/L**] key to set transceiver to ***low power*** and set the channel to **CH16**. With the **PTT** switch pressed, adjust **VR1002** so that RF power is 0.8 W.



MAIN UNIT ALIGNMENT POINT

— Confirmation —

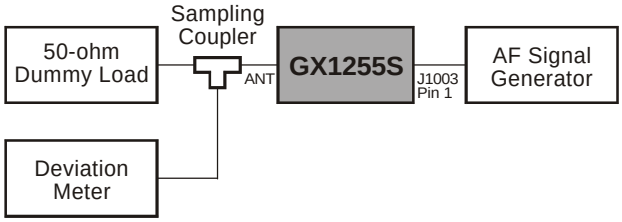
- ❒ Use the [**H/L**] key to set transceiver to ***high power*** and set the channel to **EXP01**. With the **PTT** switch pressed, confirm that RF power is between 23 W and 27 W.
- ❒ Use the [**H/L**] key to set transceiver to ***low power***. With the **PTT** switch pressed, confirm that RF power is between 0.5 W and 1.0 W.
- ❒ As descried above, confirm RF power at **EXP04** and **EXP05**. Set transceiver to ***high power*** and confirm that RF power is between 23 W and 27 W. Set transceiver to ***low power*** and confirm that RF power is between 0.5 W and 1.0 W.

Adjustment of PLL Frequency

Adjust the frequency in the transmit mode and local frequency in the receive mode.

— Adjustment —

- ❒ Setup the test equipment as shown below.



- ❒ Set the channel to **CH16**. With the **PTT** switch pressed, adjust **TC1001** so that RF frequency is 156.80000 MHz ± 50 Hz.

Adjustment and Confirmation of Deviation

Adjust deviation in the transmit mode.

— Adjustment —

- ❒ Setup the test equipment as shown below.
- ❒ Set the channel to **CH16**.
- ❒ Set the output of the audio generator (AG) to 1 kHz and 150 mV.
- ❒ With the **PTT** switch pressed, adjust **VR1003** so that the maximum deviation is ±4.5 kHz.
- ❒ Decrease the output level of AG by 20 dB (the output level of AG should be 1/10).
- ❒ With the **PTT** switch pressed, adjust the output level of AG so that the deviation is ±3.0 kHz.
- ❒ Increase the output level of AG by 20 dB (10 times of the output level of AG) which is supposed to be Detective Modulation Level ±4.5 kHz).
- ❒ Repeat steps 3 though 6 three times so that deviation is ±3.0 kHz and the maximum deviation is ±4.4 kHz to ±4.6 kHz.

— Confirmation —

- ❒ Set the output of the AG to 1 kHz and 150 mV.
- ❒ Set the channel to **EXP01**, confirm that maximum deviation is between ±4.3 kHz and ±5.0 kHz.
- ❒ Set the channel to **EXP02**, confirm that maximum deviation is between ±4.3 kHz and ±5.0 kHz.
- ❒ Set the channel to **EXP04**, confirm that maximum deviation is between ±4.0 kHz and ±5.0 kHz.
- ❒ Set the channel to **EXP05**, confirm that maximum deviation is between ±4.0 kHz and ±5.0 kHz.

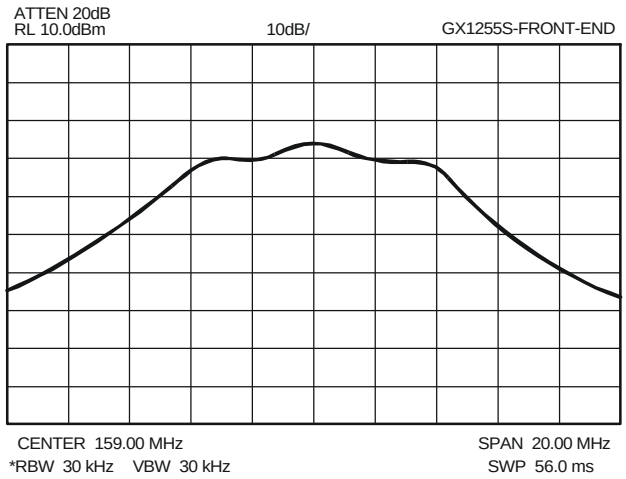
Adjustment of Receiver Front-end

Adjust the receiver front-end coil.

— Adjustment —

- ❒ Setup the test equipment as shown below.

- ❒ Set the center frequency of t he spectrum analyzer to 159.00 MHz, set SPAN to 20.00 MHz, set RBW and VBW to 30 kHz, and set SWP to 56 ms.
- ❒ Adjust **T1001**, **T1002**, **T1003**, **T1004**, and **T1005** until the wave form shown in below is obtained.



Note: Adjust the output of the tracking generator so that RF AMP and spectrum analyzer will not saturate.

Figure shows the reference wave form. The wave form varies with measuring instruments. It is impotent to take the lowest possible value at the stop band near 150 MHz and the highest possible value at the band near 156 MHz.

Each coil shall be adjusted at the range between the initial condition and right and left revolving.

Alignment

Confirmation of Weather Alert Tone

In the weather channel mode, when transceiver receives the specific emergency tone (1050 Hz), weather alert tone will be output (Weather Alert Operation). The Weather Alert mode will be active when a NOAA weather channel is in memory and radio is in memory scan or P-scan mode.

— Confirmation —

- ❒ Connect the standard signal generator (SSG) to the antenna jack.
- ❒ Squelch position set to tight.
- ❒ Press the [**SCAN**] key and start to Memory Scan mode.
- ❒ Set the SSG to 163.275 MHz (WX10) and output level of the SSG to 20 dBµV, ±3.0 kHz deviation with 1050 Hz tone modulation.
- ❒ Set the output of the SSG to ON.
- ❒ Confirm that the channel of transceiver stops at WX10 and the transceiver outputs the weather alert tone (1050 Hz).

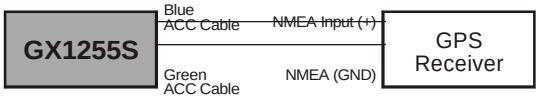
Confirmation of receiver NMEA data

Input NMEA format data output from GPS receiver to NMEA terminal A of transceiver and display it to the LCD of the transceiver.

NMEA format data output from GPS receiver is applied to NMEA terminal of transceiver's option connector and LCD of transceiver will show data.

— Confirmation —

- ❒ Setup the test equipment as shown below.



- ❒ Press and hold the [**H/L**] key, confirm that the position data is displayed on the LCD of transceiver.

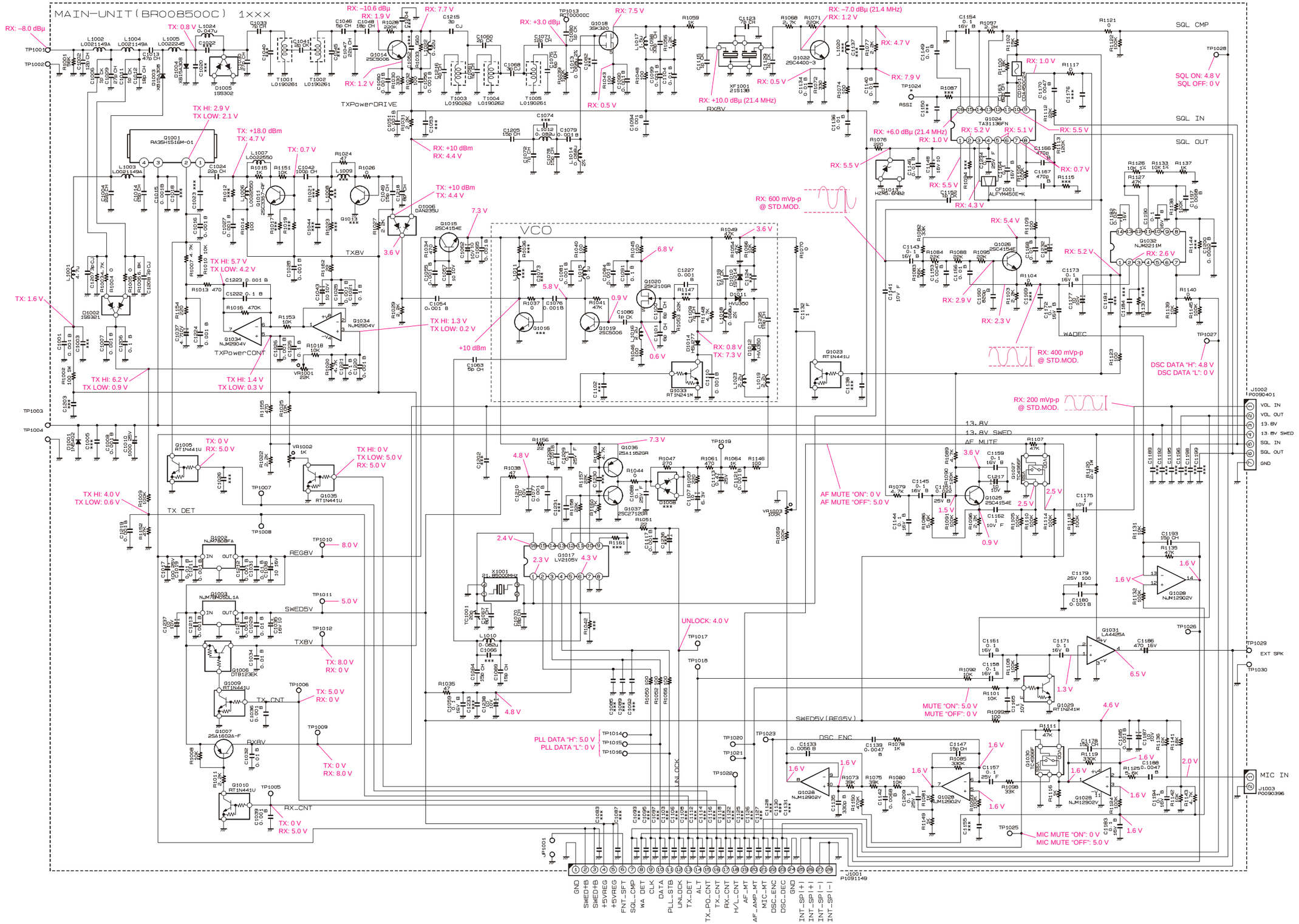
Confirmation of DSC Operation

— Confirmation —

- ❒ Prepare the confirmation transceiver (GX1260S).
- ❒ Input below data to the confirmation transceiver in advance.
  - Input "TEST" to NAME of INDIVIDUAL DIRECTORY
  - Input "123456789" to MMSI of INDIVIDUAL DIRECTORY
  - Input "123456780" to local MMSI
  - Channel 13 in U.S.A. mode
- ❒ Setup the test transceiver as follows:
  - Channel 21 in U.S.A.
- ❒ In 3 seconds, send the INDIVIDUAL CALL from the conformation transceiver.
- ❒ Confirm that the test transceiver receives the INDIVIDUAL CALL from the conformation transceiver and outputs the beep.
  Press the [**CALL/SET**] key of the test transceiver and turn off the beep.
  Simultaneously, confirm that "123456780" of conformation transceiver's MMSI is displayed in the LCD of the test transceiver.
- ❒ Confirm that the conformation transceiver receives the response from the test transceiver and outputs beep.
  Press the [**CALL/SET**] key of the conformation transceiver and turn off the beep.
  Simultaneously, confirm that "TEST" of test transceiver's MMSI is displayed in the LCD of the conformation transceiver.

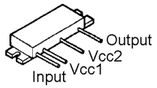
MAIN Unit

Circuit Diagram

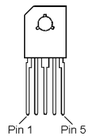


MAIN Unit

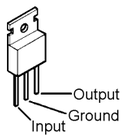
Note



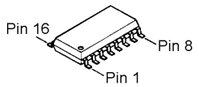
RA35H1516
(Q1001)



LA4425A
(Q1031)

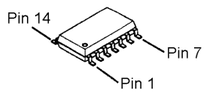


NJM7808FA
(Q1002)

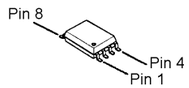


LV2105V
(Q1017)

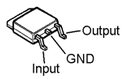
TA31136FN
(Q 1024)



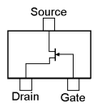
NJM12902V
(Q1028)



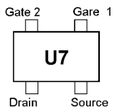
NJM2904V
(Q1034)



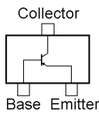
NJM78M05
(Q1003)



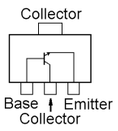
2SK210GR (YG)
(Q1020)



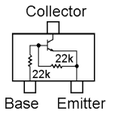
3SK320 (U7)
(Q1018)



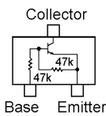
2SA1602A (MF)
(Q1007)



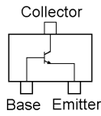
2SC3357 (MF)
(Q1011)



RT1N241M (N2)
(Q1029, 1033)

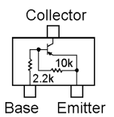


RT1N441U (M3)
(Q1005, 1009, 1010,
1023, 1035)

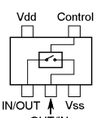


2SC4154 (LE)
(Q1025, 1026)

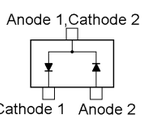
2SC5006 (24)
(Q1019)



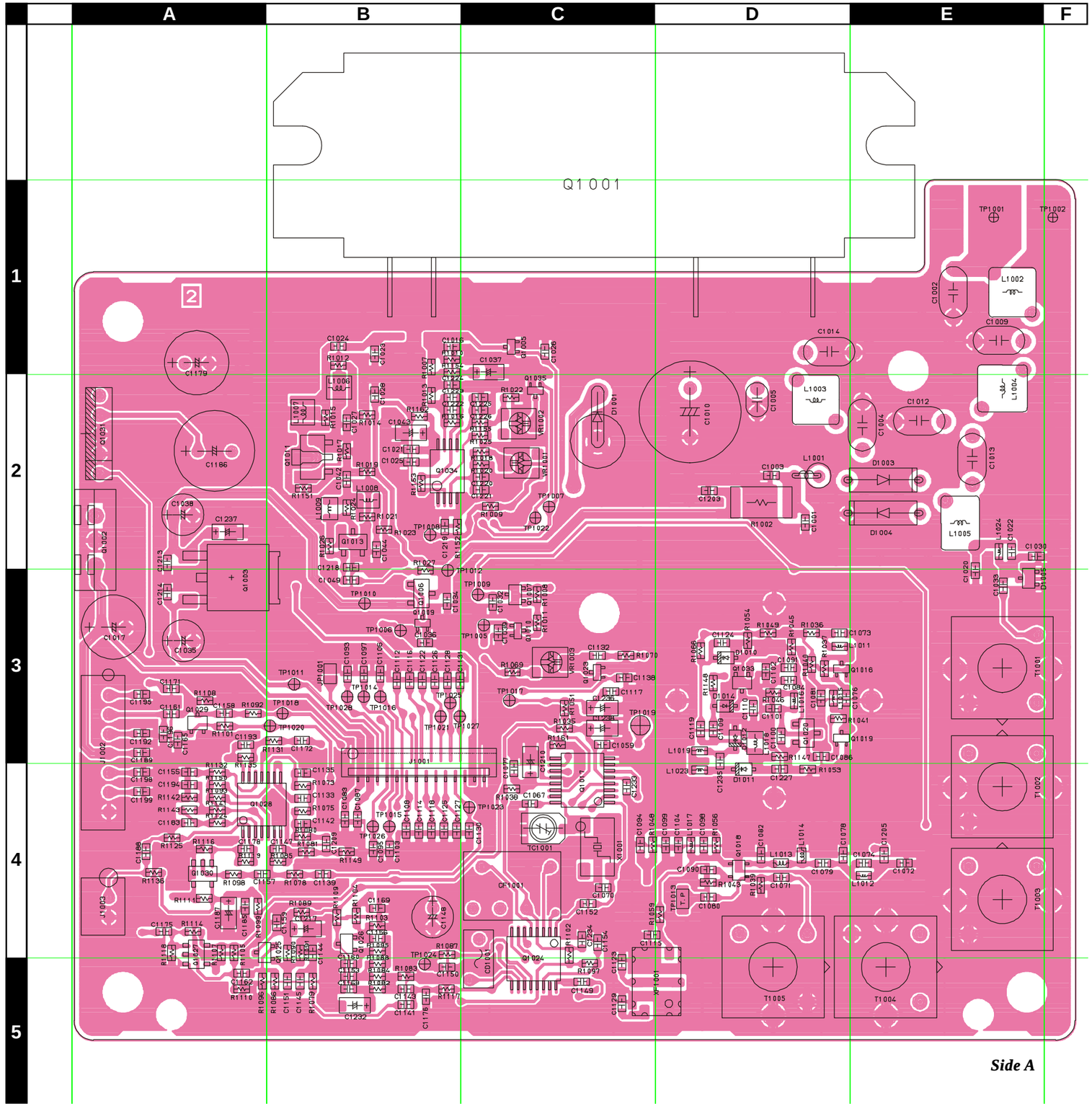
DTB123EK (F52)
(Q1006)



TC4S66F
(Q1037, 1030)



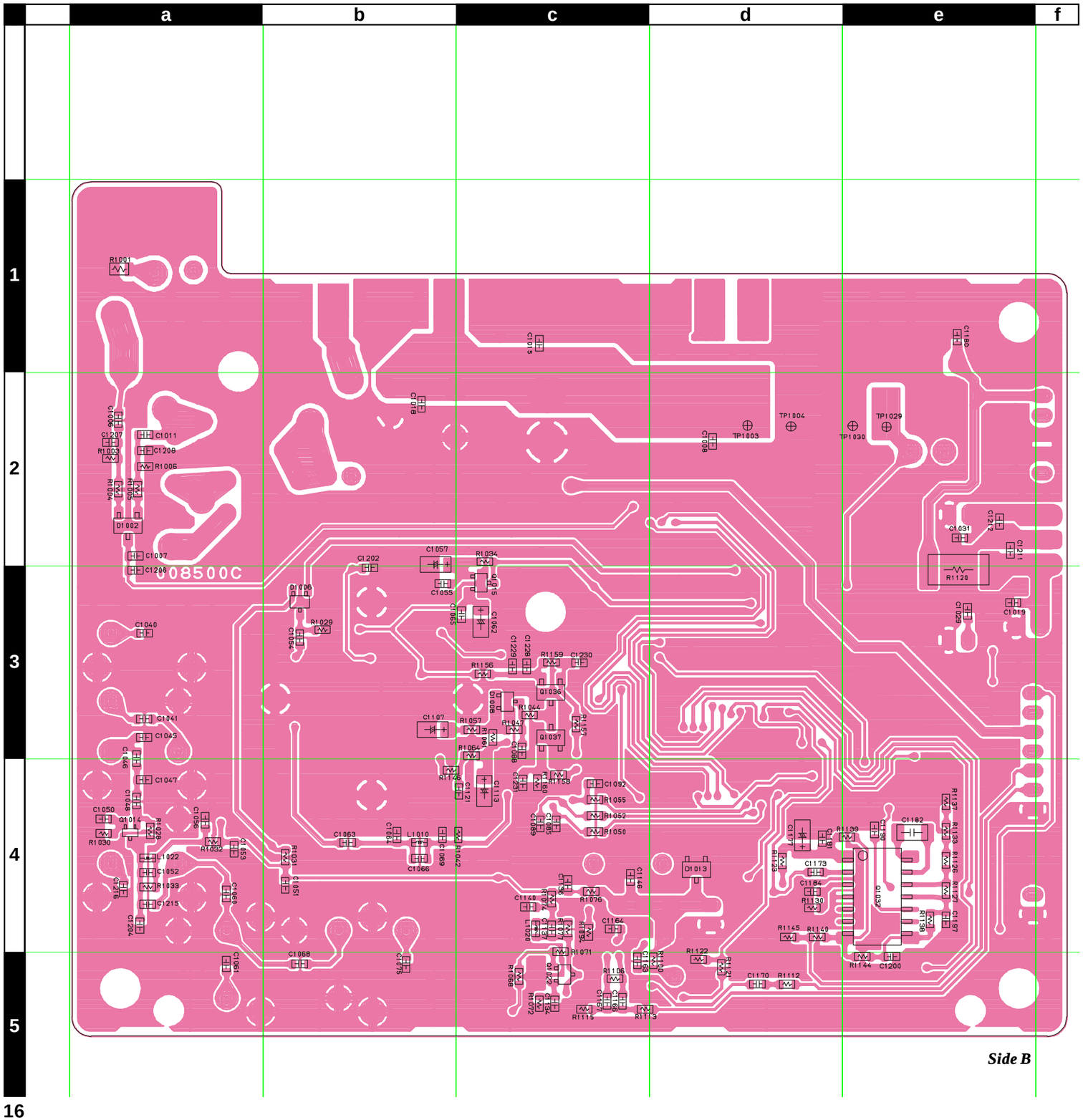
1SS302 (C3)
(D1005)



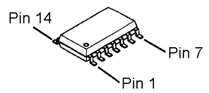
Side A

MAIN Unit

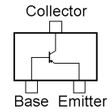
Parts Layout



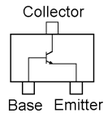
Side B



NJM2212M
(Q1032)



2SA1162GR (SG)
(Q1036)

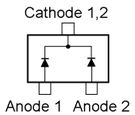


2SC2712GR (LG)
(Q1037)

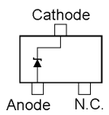
2SC4154 (LE)
(Q1015)

2SC4400 (RT4)
(Q1022)

2SC5006 (24)
(Q1014)



1SS321 (F9)
(D1002)
DAN235U (M)
(D1006)



HZM5.6MB2
(Q1032)

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
	PCB with Components					CB2155001				
	Printed Circuit Board				AM001N000	FR008500C		1-		
C 1001	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D2
C 1002	CERAMIC CAP.	12pF	50V	CH	CHU5 120J6	K02179103		1-	A	E1
C 1004	CERAMIC CAP.	22pF	50V	CH	CHU5 220J6	K02179106		1-	A	E2
C 1006	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	B	a2
C 1007	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	a2
C 1008	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	d2
C 1009	CERAMIC CAP.	27pF	50V	CH	CHU5 270J6	K02179107		1-	A	E1
C 1010	AL.ELECTRO.CAP.	1000uF	25V		RE3-25V102M 1000UF	K40149045		1-	A	D2
C 1011	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	B	a2
C 1012	CERAMIC CAP.	18pF	50V	CH	CHU5 180J6	K02179105		1-	A	E2
C 1013	CERAMIC CAP.	47pF	50V	CH	CHU5 470J6	K02179110		1-	A	E2
C 1014	CERAMIC CAP.	15pF	50V	CH	CHU5 150J6	K02179104		1-	A	E1
C 1015	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	c1
C 1016	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B1
C 1017	AL.ELECTRO.CAP.	100uF	25V		RE2-25V101M 100UF	K40149028		1-	A	A3
C 1019	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	e3
C 1021	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B2
C 1024	CHIP CAP.	22pF	50V	CH	GRM39CH220J50PT	K22174219		1-	A	B1
C 1025	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B2
C 1027	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B2
C 1028	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B2
C 1029	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	e3
C 1030	CHIP CAP.	27pF	50V	CH	GRM39CH270J50PT	K22174221		1-	A	E2
C 1031	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	e2
C 1032	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	C3
C 1033	CHIP CAP.	8pF	50V	CH	GRM39CH080D50PT	K22174209		1-	A	E3
C 1034	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	B3
C 1035	AL.ELECTRO.CAP.	10uF	16V		RC2-16V100M(4X7)	K40129012		1-	A	A3
C 1036	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B3
C 1037	CHIP TA.CAP.	4.7uF	10V		TEMSVA1A475M-8R	K78100022		1-	A	C1
C 1039	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C3
C 1041	CHIP CAP.	2pF	50V	CK	GRM39CK020C50PT	K22174203		1-	B	a3
C 1042	CHIP CAP.	100pF	50V	CH	GRM39CH101J50PT	K22174235		1-	A	B2
C 1043	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	A	B2
C 1046	CHIP CAP.	5pF	50V	CH	GRM39CH050C50PT	K22174206		1-	B	a3
C 1047	CHIP CAP.	22pF	50V	CH	GRM39CH220J50PT	K22174219		1-	B	a4
C 1048	CHIP CAP.	18pF	50V	CH	GRM39CH180J50PT	K22174217		1-	B	a4
C 1049	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	B3
C 1050	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	a4
C 1051	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	a4
C 1054	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b3
C 1055	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b3
C 1056	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	a4
C 1057	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	B	b2
C 1059	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	C3
C 1060	CHIP CAP.	2pF	50V	CK	GRM39CK020C50PT	K22174203		1-	B	a4
C 1061	CHIP CAP.	5pF	50V	CH	GRM39CH050C50PT	K22174206		1-	B	a5
C 1062	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	B	b3
C 1063	CHIP CAP.	5pF	50V	CH	GRM39CH050C50PT	K22174206		1-	B	b4
C 1064	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	B	b4
C 1065	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b3
C 1067	CHIP CAP.	8pF	50V	CH	GRM39CH080D50PT	K22174209		1-	A	C4
C 1068	CHIP CAP.	3pF	50V	CJ	GRM39CJ030C50PT	K22174204		1-	B	b5
C 1069	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	B	b4
C 1070	CHIP CAP.	18pF	50V	CH	GRM39CH180J50PT	K22174217		1-	A	C4
C 1071	CHIP CAP.	12pF	50V	CH	GRM39CH120J50PT	K22174213		1-	A	D4
C 1072	CHIP CAP.	7pF	50V	CH	GRM39CH070D50PT	K22174208		1-	A	E4
C 1075	CHIP CAP.	6pF	50V	CH	GRM39CH060D50PT	K22174207		1-	B	b5
C 1076	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D3
C 1077	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C4
C 1078	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	D4
C 1079	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D4
C 1080	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	A	D4
C 1081	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D3
C 1084	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D3
C 1086	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	A	D3
C 1088	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	B	c3
C 1090	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D4
C 1091	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	D3
C 1094	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C4
C 1098	CHIP CAP.	33pF	50V	CH	GRM39CH330J50PT	K22174223		1-	A	D4
C 1099	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D4
C 1100	CHIP CAP.	6pF	50V	CH	GRM39CH060D50PT	K22174207		1-	A	D3
C 1101	CHIP CAP.	6pF	50V	CH	GRM39CH060D50PT	K22174207		1-	A	D3

MAIN Unit

Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 1104	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	D4
C 1107	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	b3
C 1109	CHIP CAP.	7pF	50V	CH	GRM39CH070D50PT	K22174208		1-	A	D3
C 1110	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D3
C 1113	CHIP TA.CAP.	0.47uF	25V		TESVA1E474M1-8R	K78140009		1-	B	b4
C 1115	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	A	C4
C 1117	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C3
C 1119	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	A	D3
C 1121	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b4
C 1123	CHIP CAP.	7pF	50V	CH	GRM39CH070D50PT	K22174208		1-	A	C5
C 1129	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	A	C5
C 1132	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	A	C3
C 1133	CHIP CAP.	0.0056uF	50V	B	GRM39B562M50PT	K22174818		1-	A	B4
C 1134	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	c5
C 1135	CHIP CAP.	330pF	50V	B	GRM39B331K50PT	K22174820		1-	A	B4
C 1136	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	c4
C 1139	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	A	B4
C 1140	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	c4
C 1141	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	A	B5
C 1142	CHIP CAP.	0.0068uF	50V	B	GRM39B682K50PT	K22174834		1-	A	B4
C 1143	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B5
C 1144	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B4
C 1145	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B5
C 1146	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	c4
C 1147	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	B4
C 1148	AL.ELECTRO.CAP.	10uF	16V		RC2-16V100M(4X7)	K40129012		1-	A	B4
C 1149	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	C5
C 1151	CHIP CAP.	0.022uF	25V	B	GRM39B223K25PT	K22144807		1-	A	B5
C 1152	CHIP CAP.	1pF	50V	CK	GRM39CK010C50PT	K22174202		1-	A	C4
C 1153	CHIP CAP.	0.0047uF	50V	B	GRM39B472K50PT	K22174833		1-	A	B5
C 1154	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	C4
C 1156	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	B4
C 1157	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	A	A4
C 1158	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A3
C 1159	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B4
C 1160	CHIP CAP.	820pF	50V	B	GRM39B821M50PT	K22174808		1-	A	B5
C 1162	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	A	A5
C 1163	CHIP CAP.	82pF	50V	CH	GRM39CH820J50PT	K22174233		1-	B	c5
C 1164	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	B	c4
C 1165	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	A	A3
C 1166	CHIP CAP.	470pF	50V	B	ECUV1H471KBV	K22179610		1-	B	c5
C 1167	CHIP CAP.	470pF	50V	B	ECUV1H471KBV	K22179610		1-	B	c5
C 1168	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	A	B5
C 1170	CHIP CAP.	0.0047uF	50V	B	GRM39B472K50PT	K22174833		1-	B	d5
C 1171	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A3
C 1172	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B3
C 1173	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	B	d4
C 1175	CHIP CAP.	1uF	10V	F	GRM39F105Z10PT	K22105001		1-	A	A4
C 1177	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	B	d4
C 1178	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	A4
C 1179	AL.ELECTRO.CAP.	100uF	25V		RE2-25V101M 100UF	K40149028		1-	A	A1
C 1180	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	e1
C 1182	FILM CAP.	0.027uF	16V		ECHU1C273JB5	K57120012		1-	B	e4
C 1183	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A4
C 1185	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A4
C 1186	AL.ELECTRO.CAP.	470uF	16V		RE3-16V471M 470UF	K40129066		1-	A	A2
C 1187	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	A	A4
C 1188	CHIP CAP.	0.0047uF	50V	B	GRM39B472K50PT	K22174833		1-	A	A4
C 1190	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	B	d4
C 1193	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	A3
C 1194	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	A4
C 1196	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A3
C 1197	CHIP CAP.	0.0068uF	50V	B	GRM39B682K50PT	K22174834		1-	B	e4
C 1200	CHIP CAP.	0.0022uF	50V	B	GRM39B222K50PT	K22174822		1-	B	e5
C 1205	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	E4
C 1206	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	B	a3
C 1207	CHIP CAP.	4pF	50V	CH	GRM39CH040C50PT	K22174205		1-	B	a2
C 1208	CHIP CAP.	3pF	50V	CJ	GRM39CJ030C50PT	K22174204		1-	B	a2
C 1209	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	A	B4
C 1210	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	A	C3
C 1211	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	e2
C 1212	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	e2
C 1213	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A2
C 1214	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	A3
C 1215	CHIP CAP.	5pF	50V	CH	GRM39CH050C50PT	K22174206		1-	B	a4
C 1216	CHIP CAP.	5pF	50V	CH	GRM39CH050C50PT	K22174206		1-	B	a4

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 1217	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	A	B4
C 1218	CHIP CAP.	8pF	50V	CH	GRM39CH080D50PT	K22174209		1-	A	B2
C 1219	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B2
C 1220	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C2
C 1221	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	C2
C 1222	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	B2
C 1223	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B2
C 1224	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	B2
C 1225	CHIP CAP.	0.1uF	16V	B	GRM39B104K16PT	K22124805		1-	A	C2
C 1226	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C2
C 1227	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	D4
C 1228	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	c3
C 1229	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	B	c3
C 1233	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	A	C4
C 1234	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	A	C4
C 1235	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	A	D3
C 1236	CHIP TA.CAP.	0.1uF	35V		TESVA1V104M1-8R	K78160025		1-	A	C3
C 1237	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	A	A2
C 1238	CHIP TA.CAP.	10uF	10V		TEMSVA1A106M-8R	K78100028		1-	A	C3
C 1239	CERAMIC CAP.	0.01uF	16V	Y	EP050Y103N-A	K28129001		1-		
CD1001	CERAMIC DISC				CDA450C24	H7901430		1-	A	C5
CF1001	CERAMIC FILTER				ALFYM450E=K	H3900535		1-	A	C4
D 1001	DIODE				1N5402	G2090778		1-	A	C2
D 1002	DIODE				1SS321 TE85R	G2070076		1-	B	a2
D 1003	DIODE				XB15A308A2GB	G2090742		1-	A	E2
D 1004	DIODE				XB15A308A2GB	G2090742		1-	A	D2
D 1005	DIODE				1SS302 TE85R	G2070088		1-	A	E3
D 1006	DIODE				DAN235U TL	G2070176		1-	B	b3
D 1010	DIODE				1SV214 TPH	G2070356		1-	A	D3
D 1011	DIODE				HVU350TRF	G2070380		1-	A	D4
D 1012	DIODE				HVU350TRF	G2070380		1-	A	D3
D 1013	DIODE				HZM5.6NB2 TR	G2070722		1-	B	d4
D 1014	DIODE				HSU277TRF	G2070118		1-	A	D3
D 1015	DIODE				1SS355 TE-17	G2070470		1-		
J 1001	CONNECTOR				28FLT-SM1-TB	P1091149		1-	A	B4
J 1002	CONNECTOR				B7B-PH-K-S	P0090401		1-	A	A3
J 1003	CONNECTOR				B2B-PH-K-S	P0090396		1-	A	A4
L 1001	M.RFC	4.7uH			LAL03NA4R7K	L1190203		1-	A	D2
L 1002	COIL A1				4.5T3.5D0.8UEW R	L0021149A		1-	A	E1
L 1003	COIL A1				4.5T3.5D0.8UEW R	L0021149A		1-	A	D2
L 1004	COIL A1				4.5T3.5D0.8UEW R	L0021149A		1-	A	E1
L 1005	COIL A1				3.5T4.0D0.8UEW R	L0022245		1-	A	E2
L 1006	COIL				E2 0.25-1.9-8T-L	L0022550		1-	A	B2
L 1007	COIL				E2 0.25-1.9-8T-L	L0022550		1-	A	B2
L 1010	M.RFC	0.082uH			HK1608 82NJ-T	L1690527		1-	B	b4
L 1012	M.RFC	0.082uH			HK1608 82NJ-T	L1690527		1-	A	E4
L 1013	M.RFC	0.068uH		2%	C1608CA-68NG	L1691042		1-	A	D4
L 1014	M.RFC	0.068uH		2%	C1608CA-68NG	L1691042		1-	A	D4
L 1015	M.RFC	0.1uH			HK1608 R10J-T	L1690528		1-	A	D3
L 1016	M.RFC	2.2uH			LK1608 2R2K-T	L1690634		1-	A	D3
L 1017	M.RFC	1.5uH			LK1608 1R5K-T	L1690846		1-	A	D4
L 1018	M.RFC	0.068uH		2%	C2012C-68NG	L1690774		1-	A	D3
L 1019	M.RFC	2.2uH			LK1608 2R2K-T	L1690634		1-	A	D3
L 1022	M.RFC	0.22uH			HK1608 R22J-T	L1690940		1-	B	a4
L 1023	M.RFC	2.2uH			LK1608 2R2K-T	L1690634		1-	A	D4
L 1024	M.RFC	0.047uH			HK1608 47NJ-T	L1690524		1-	A	E2
Q 1001	IC				RA35H1516M-01	G1093695		1-	A	B1
Q 1002	IC				NJM7808FA	G1093640		1-	A	A2
Q 1003	IC				NJM78M05DL1A(TE1)	G1093660		1-	A	A3
Q 1005	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C1
Q 1006	TRANSISTOR				DTB123EK T146	G3070022		1-	A	B3
Q 1007	TRANSISTOR				2SA1602A-T11-1F	G3116028F		1-	A	C3
Q 1009	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	B3
Q 1010	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C3
Q 1011	TRANSISTOR				2SC3357-T2 RF	G3333577F		1-	A	B2
Q 1014	TRANSISTOR				2SC5006-T1	G3350068		1-	B	a4
Q 1015	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	B	b3
Q 1017	IC				LV2105V-TLM	G1093191		1-	A	C4
Q 1018	FET				3SK320(TE85L)	G4803208		1-	A	D4
Q 1019	TRANSISTOR				2SC5006-T1	G3350068		1-	A	D3
Q 1020	FET				2SK210GR TE85R	G3802107G		1-	A	D3
Q 1022	TRANSISTOR				2SC4400-3-TL	G3344008C		1-	B	c5
Q 1023	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C3
Q 1024	IC				TA31136FN(EL)	G1091605		1-	A	C5
Q 1025	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	A	A4
Q 1026	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	A	B4

MAIN Unit

Parts List

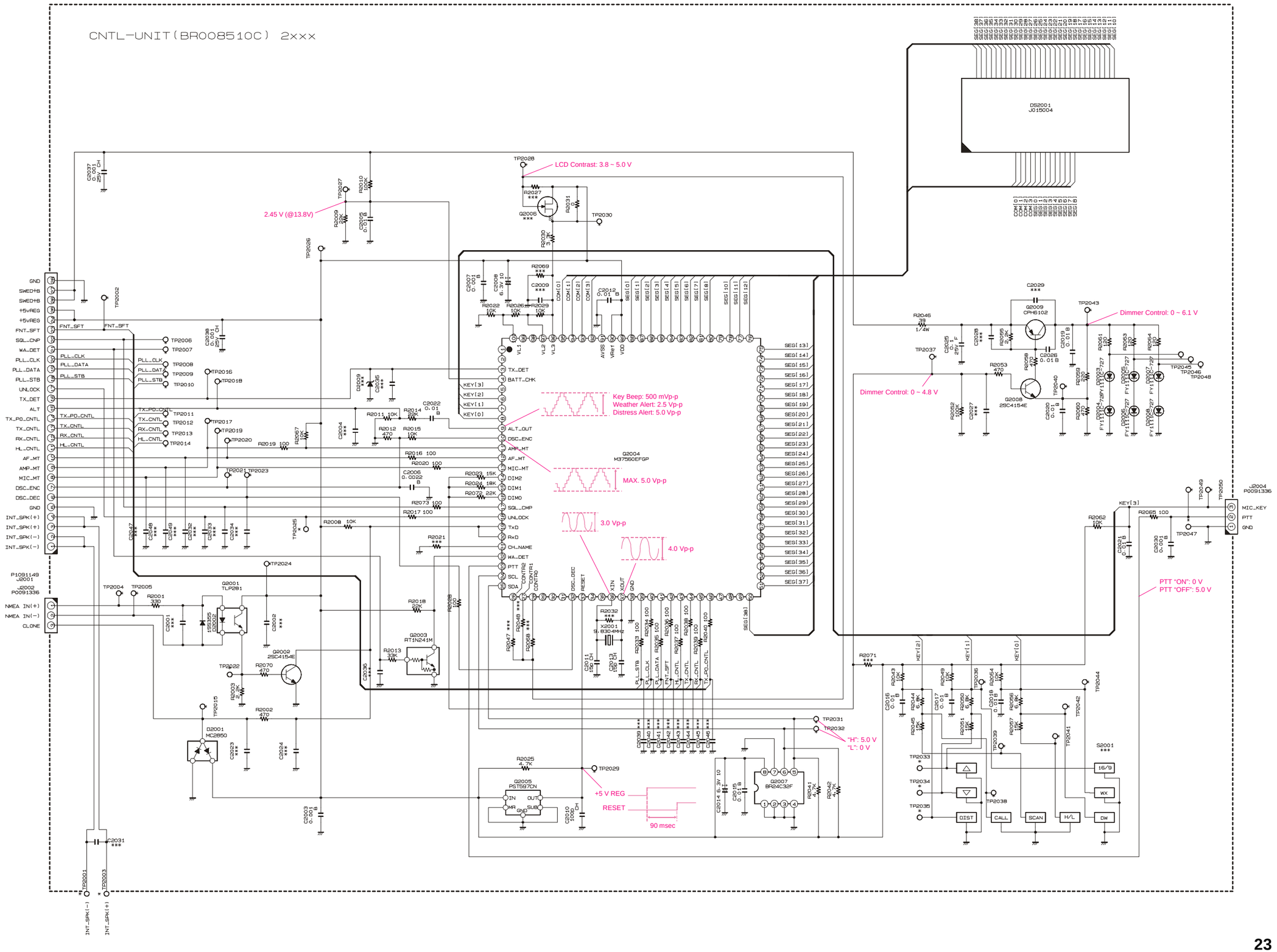
REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
Q 1027	IC				TC4S66F TE85R	G1090893		1-	A	A4
Q 1028	IC				NJM12902V(TE1)	G1093592		1-	A	A4
Q 1029	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	A3
Q 1030	IC				TC4S66F TE85R	G1090893		1-	A	A4
Q 1031	IC				LA4425A	G1092241		1-	A	A2
Q 1032	IC				NJM2211M(TE1)	G1092943		1-	B	e4
Q 1033	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	A	D3
Q 1034	IC				NJM2904V-TE1	G1091677		1-	A	B2
Q 1035	TRANSISTOR				RT1N441U-T11-1	G3070247		1-	A	C2
Q 1036	TRANSISTOR				2SA1162GR TE85R	G3111627G		1-	B	c3
Q 1037	TRANSISTOR				2SC2712GR TE85R	G3327127G		1-	B	c3
R 1001	CHIP RES.	56k	1/10W	5%	RMC1/10T 563J	J24205563		1-	B	a1
R 1002	CHIP RES.	100	1W	5%	RMC1 101JTE	J24305101		1-	A	D2
R 1003	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	a2
R 1004	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	a2
R 1005	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	a2
R 1006	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	a2
R 1007	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	A	B1
R 1008	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	C3
R 1009	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	C2
R 1010	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	B1
R 1011	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	C3
R 1013	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	A	B2
R 1014	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	B2
R 1015	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	A	B2
R 1016	CHIP RES.	470k	1/16W	5%	RMC1/16 474JATP	J24185474		1-	A	B2
R 1018	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	C2
R 1020	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	A	C2
R 1022	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	C2
R 1024	CHIP RES.	47	1/16W	5%	RMC1/16 470JATP	J24185470		1-	A	B2
R 1025	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	C2
R 1026	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	B2
R 1027	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	B3
R 1028	CHIP RES.	220k	1/16W	5%	RMC1/16 224JATP	J24185224		1-	B	a4
R 1029	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	B	b3
R 1030	CHIP RES.	330	1/16W	5%	RMC1/16 331JATP	J24185331		1-	B	a4
R 1031	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	B	a4
R 1032	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	a4
R 1033	CHIP RES.	560	1/16W	5%	RMC1/16 561JATP	J24185561		1-	B	a4
R 1034	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	B	b2
R 1035	CHIP RES.	47	1/16W	5%	RMC1/16 470JATP	J24185470		1-	A	C3
R 1037	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	D3
R 1038	CHIP RES.	47	1/16W	5%	RMC1/16 470JATP	J24185470		1-	A	C4
R 1039	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	D4
R 1040	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	D3
R 1041	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	D3
R 1043	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	D4
R 1044	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	c3
R 1045	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	D3
R 1046	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	D3
R 1047	CHIP RES.	270	1/16W	5%	RMC1/16 271JATP	J24185271		1-	B	c3
R 1048	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	C4
R 1049	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	D3
R 1050	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c4
R 1052	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c4
R 1053	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	A	D4
R 1054	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	D3
R 1055	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c4
R 1056	CHIP RES.	1.2k	1/16W	5%	RMC1/16 122JATP	J24185122		1-	A	D4
R 1057	CHIP RES.	220	1/16W	5%	RMC1/16 221JATP	J24185221		1-	B	b3
R 1059	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	A	D4
R 1061	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	B	c3
R 1064	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	B	b3
R 1066	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	D3
R 1068	CHIP RES.	2.7k	1/16W	5%	RMC1/16 272JATP	J24185272		1-	B	c5
R 1069	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	C3
R 1070	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	C3
R 1071	CHIP RES.	220k	1/16W	5%	RMC1/16 224JATP	J24185224		1-	B	c4
R 1072	CHIP RES.	330	1/16W	5%	RMC1/16 331JATP	J24185331		1-	B	c5
R 1073	CHIP RES.	39k	1/16W	5%	RMC1/16 393JATP	J24185393		1-	A	B4
R 1074	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c4
R 1075	CHIP RES.	39k	1/16W	5%	RMC1/16 393JATP	J24185393		1-	A	B4
R 1076	CHIP RES.	220	1/16W	5%	RMC1/16 221JATP	J24185221		1-	B	c4
R 1077	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	B	c4
R 1078	CHIP RES.	330k	1/16W	5%	RMC1/16 334JATP	J24185334		1-	A	B4
R 1079	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	A	B5

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 1080	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	B4
R 1081	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	A	B4
R 1082	CHIP RES.	33k	1/16W	5%	RMC1/16 333JATP	J24185333		1-	A	B5
R 1083	CHIP RES.	56k	1/16W	5%	RMC1/16 563JATP	J24185563		1-	A	B5
R 1084	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	A	B5
R 1085	CHIP RES.	330k	1/16W	5%	RMC1/16 334JATP	J24185334		1-	A	B4
R 1086	CHIP RES.	5.6k	1/16W	5%	RMC1/16 562JATP	J24185562		1-	A	B5
R 1088	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	A	B5
R 1089	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	A	B4
R 1090	CHIP RES.	120k	1/16W	5%	RMC1/16 124JATP	J24185124		1-	A	B4
R 1091	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	B4
R 1092	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	A3
R 1093	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A4
R 1095	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	A	B4
R 1096	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	A5
R 1097	CHIP RES.	2.2M	1/16W	5%	RMC1/16 225JATP	J24185225		1-	A	C5
R 1098	CHIP RES.	15k	1/16W	5%	RMC1/16 153JATP	J24185153		1-	A	A4
R 1099	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	A4
R 1100	CHIP RES.	1.8k	1/16W	5%	RMC1/16 182JATP	J24185182		1-	B	c5
R 1101	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	A3
R 1102	CHIP RES.	15k	1/16W	5%	RMC1/16 153JATP	J24185153		1-	A	C4
R 1103	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	A	B4
R 1104	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	B4
R 1105	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A4
R 1106	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	B	c5
R 1107	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	A4
R 1108	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A3
R 1109	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	A	B4
R 1110	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A5
R 1111	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	A4
R 1112	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	d5
R 1113	CHIP RES.	120k	1/16W	5%	RMC1/16 124JATP	J24185124		1-	B	c5
R 1114	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A4
R 1116	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	A	A4
R 1117	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	A	B5
R 1118	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A4
R 1119	CHIP RES.	330k	1/16W	5%	RMC1/16 334JATP	J24185334		1-	A	A4
R 1120	CHIP RES.	0	1W	5%	RMC1 JPATE	J24305000		1-	B	e3
R 1121	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	d5
R 1122	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	B	d5
R 1123	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d4
R 1124	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A4
R 1125	CHIP RES.	5.6k	1/16W	5%	RMC1/16 562JATP	J24185562		1-	A	A4
R 1126	CHIP RES.	10k	1/16W	1%	RMC1/16 103FTP	J24183103		1-	B	e4
R 1127	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	B	e4
R 1131	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	B3
R 1132	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	A4
R 1133	CHIP RES.	10k	1/16W	1%	RMC1/16 103FTP	J24183103		1-	B	e4
R 1135	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	A	A3
R 1136	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	A4
R 1137	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	B	e4
R 1138	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	B	e4
R 1139	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	d4
R 1140	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	d4
R 1141	CHIP RES.	18k	1/16W	5%	RMC1/16 183JATP	J24185183		1-	A	A4
R 1142	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	A4
R 1143	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	A	A4
R 1145	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	B	d4
R 1146	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	b4
R 1148	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	A	D3
R 1149	CHIP RES.	1k	1/16W	5%	RMC1/16 102JATP	J24185102		1-	A	B4
R 1150	CHIP RES.	470k	1/16W	5%	RMC1/16 474JATP	J24185474		1-	A	A4
R 1151	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	B2
R 1152	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	A	B2
R 1153	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	A	B2
R 1154	CHIP RES.	220	1/16W	5%	RMC1/16 221JATP	J24185221		1-	A	B1
R 1155	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	A	C2
R 1156	CHIP RES.	22	1/16W	5%	RMC1/16 220JATP	J24185220		1-	B	b3
R 1157	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	c3
R 1158	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	c4
R 1159	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	c3
R 1160	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	c4
R 1162	CHIP RES.	22	1/16W	5%	RMC1/16 220JATP	J24185220		1-	A	B2
R 1163	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-		
R 1164	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-		
T 1001	COIL				MC120 E526HNSA-110461	L0190261		1-	A	E3

MAIN Unit

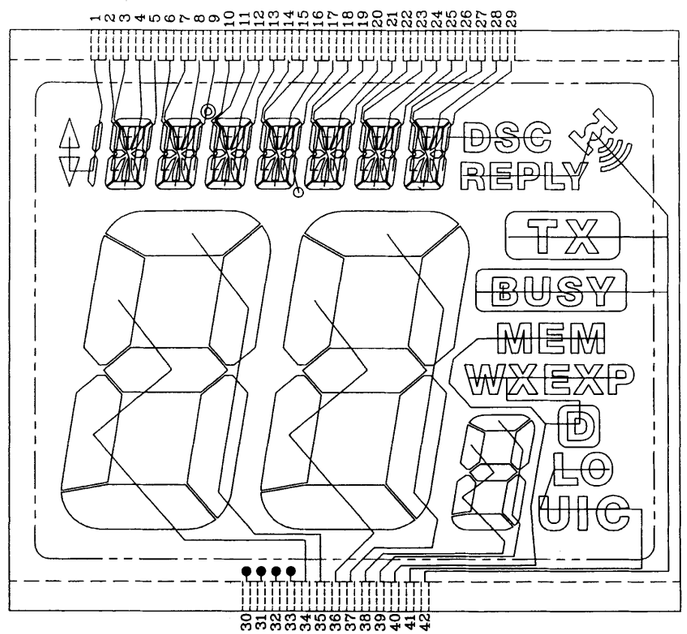
Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
T 1002	COIL				MC120 E526HNSA-110461	L0190261		1-	A	E4
T 1003	COIL				MC120 E526HNSA-110462	L0190262		1-	A	E4
T 1004	COIL				MC120 E526HNSA-110462	L0190262		1-	A	E5
T 1005	COIL				MC120 E526HNSA-110461	L0190261		1-	A	D5
TC1001	TRIMMER CAP.	20pF			ECR-KN020E61X	K91000213		1-	A	C4
TP1013	CHECK TERMINAL				RCT00000C	Q5000103		1-	A	D4
VR1001	POT.	22k			EVN-5ESX50BE4	J51811223		1-	A	C2
VR1002	POT.	1k			EVN-5ESX50B13	J51811102		1-	A	C2
VR1003	POT.	100k			EVN-5ESX50B15	J51811104		1-	A	C3
X 1001	XTAL TOP-B	21.85MHz			21.85000MHZ	H0103270		1-	A	C4
XF1001	XTAL FILTER				21S13B	H1102353		1-	A	C5
	SHIELD CASE VCO					RA0418500		1-		
	SHIELD CASE COVER				F	RA041830A		1-		
	LEAF SPRING					R0140031		1-		

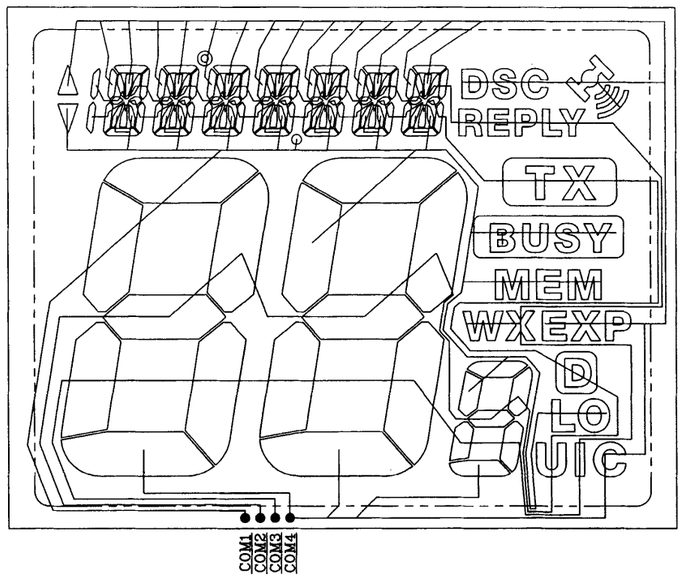

CNTL-UNIT(BR008510C) 2xxx
LCD Contrast: 3.8 ~ 5.0 V
2.45 V (@13.8V)
Key Beep: 500 mVp-p
Weather Alert: 2.5 Vp-p
Distress Alert: 5.0 Vp-p
MAX. 5.0 Vp-p
3.0 Vp-p
4.0 Vp-p
+5 V REG
RESET
90 msec
"H": 5.0 V
"L": 0 V
PTT "ON": 0 V
PTT "OFF": 5.0 V
Dimmer Control: 0 ~ 6.1 V
Dimmer Control: 0 ~ 4.8 V
DS2001
JO15004
Q2004
M37560EFGP
Q2005
PST597CN
Q2006
2SK
Q2007
BP24C32F
Q2008
2SC4154E
Q2009
CPH6102
Q2001
TLP281
Q2002
2SC4154E
Q2003
RT1N241M
D2001
MC2850
X2001
9.8304MHz
J2004
P0091336
P1091149
J2001
J2002
P0091336
S2001
16/9
WX
DIST
CALL
SCAN
H/L
DW
GND
SWDTB
SWDTB
+5VREG
+5VREG
FNT_SFT
SQL_CNP
WA_DET
PLL_CLK
PLL_DATA
PLL_STB
UNLOCK
TX_DET
ALT
TX_PD_CNTL
TX_CNTL
RX_CNTL
HL_CNTL
AF_MT
AMP_MT
MIC_MT
DSC_ENC
DSC_DEC
INT_SPK(+)
INT_SPK(-)
NMEA IN(+)
NMEA IN(-)
CLONE
KEY[3]
KEY[2]
KEY[1]
KEY[0]
MIC_KEY
PTT
GND

CNTL Unit

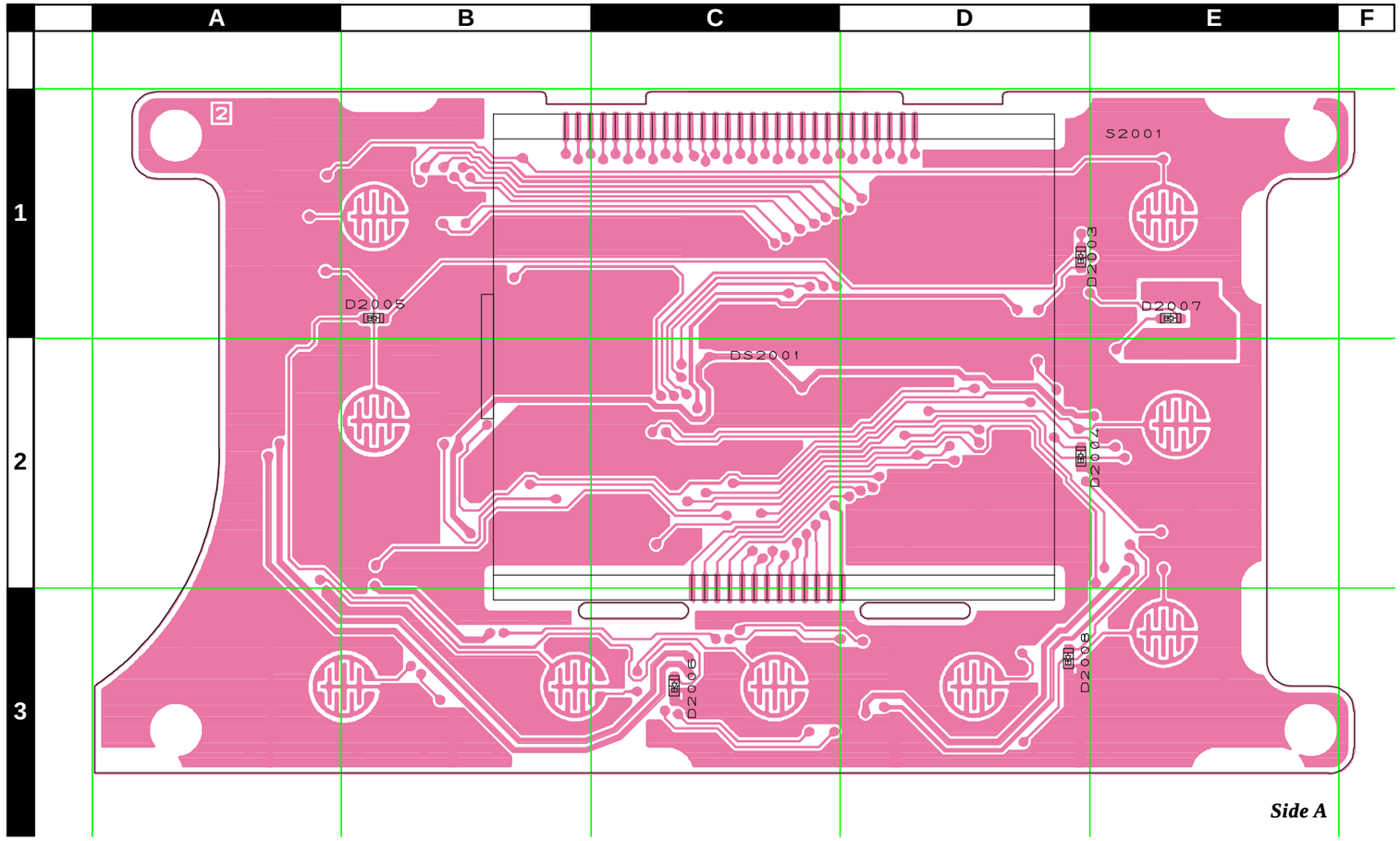
Note



DS2001 SEGMENT



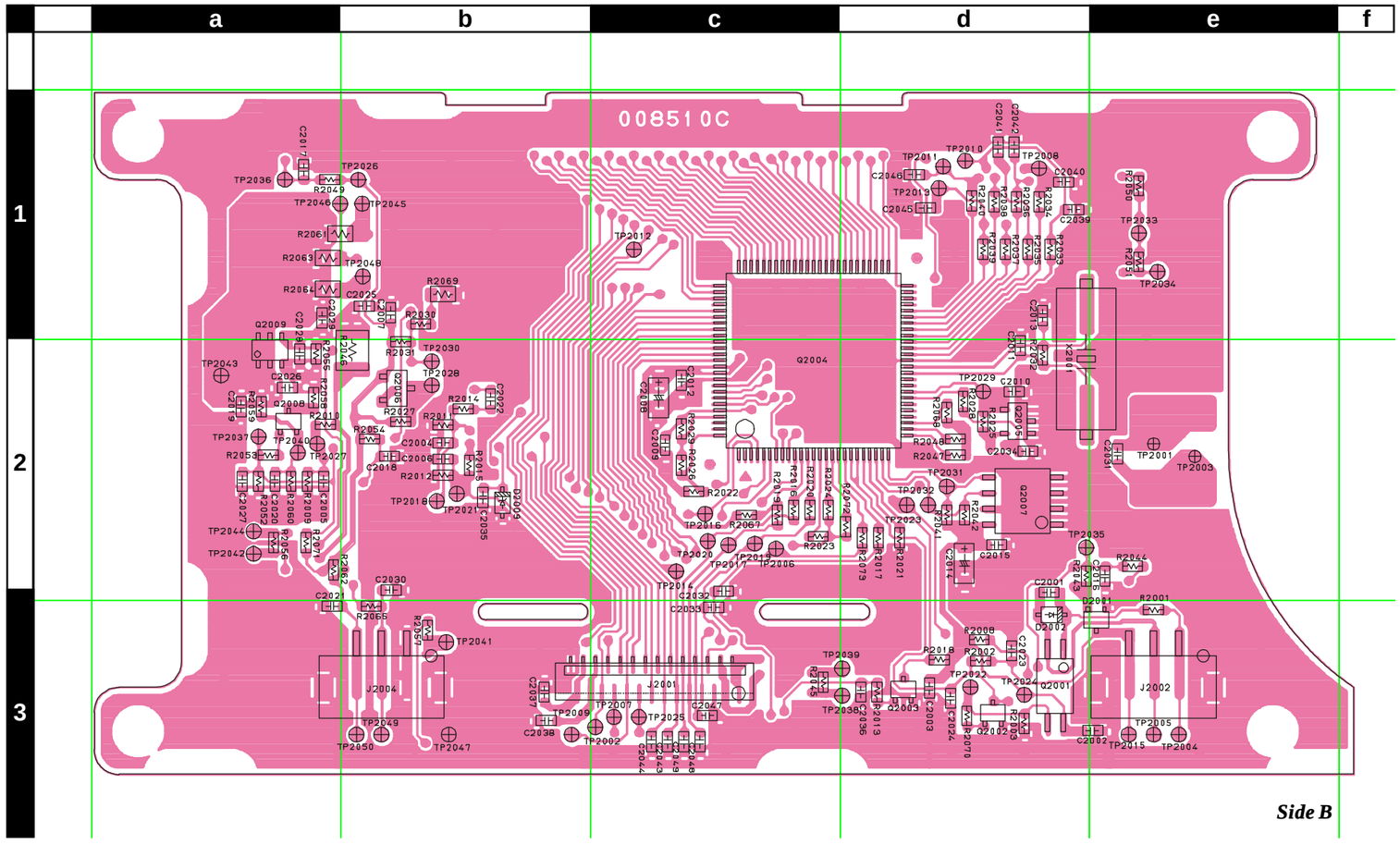
DS2001 COMMON

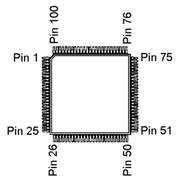


Side A

CNTL Unit

Parts Layout





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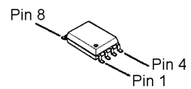
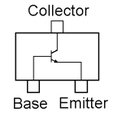
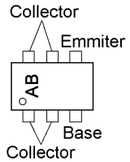
(Q2004)



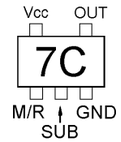
BR24C62F
(Q2007)



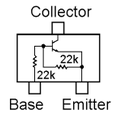
2SC4154 (LE)
(Q2002, 2008)



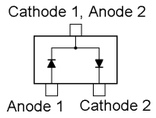
CPH6102 ()
(Q2009)



PST597CNR (7C)
(Q2005)



RT1N241M (N2)
(Q2003)



MC2850 (A7)
(D2008)

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
	PCB with Components					CB2156001				
	Printed Circuit Board				AM001N000	FR0085100		1-		
C 2003	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	d3
C 2005	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	a2
C 2007	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b1
C 2008	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	c2
C 2009	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	c2
C 2010	CHIP CAP.	100pF	50V	CH	GRM39CH101J50PT	K22174235		1-	B	d2
C 2011	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	B	d2
C 2012	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	c2
C 2013	CHIP CAP.	15pF	50V	CH	GRM39CH150J50PT	K22174215		1-	B	d1
C 2014	CHIP TA.CAP.	10uF	6.3V		TEMSVA0J106M-8R	K78080027		1-	B	d2
C 2015	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	d2
C 2016	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	e2
C 2017	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	a1
C 2018	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	b2
C 2019	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	a2
C 2020	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	a2
C 2021	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	a3
C 2022	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	b2
C 2025	CHIP CAP.	0.1uF	25V	F	GRM39F104Z25PT	K22145001		1-	B	b1
C 2026	CHIP CAP.	0.01uF	50V	B	GRM39B103M50PT	K22174823		1-	B	a2
C 2030	CHIP CAP.	0.001uF	50V	B	GRM39B102K50PT	K22174821		1-	B	b3
C 2037	CHIP CAP.	0.001uF	25V	CH	GRM39CH102J25PT	K22144204		1-	B	b3
C 2038	CHIP CAP.	0.001uF	25V	CH	GRM39CH102J25PT	K22144204		1-	B	b3
D 2001	DIODE				MC2850-T11-1	G2070704		1-	B	e3
D 2002	DIODE				1SS355 TE-17	G2070470		1-	B	d3
D 2003	LED				FY1111C-722-TR	G2070916		1-	A	D1
D 2004	LED				FY1111C-722-TR	G2070916		1-	A	D2
D 2005	LED				FY1111C-722-TR	G2070916		1-	A	B1
D 2006	LED				FY1111C-722-TR	G2070916		1-	A	C3
D 2007	LED				FY1111C-722-TR	G2070916		1-	A	E1
D 2008	LED				FY1111C-722-TR	G2070916		1-	A	D3
DS2001	LCD				J015004	G6090148		1-	A	C2
J 2001	CONNECTOR				28FLT-SM1-TB	P1091149		1-	B	c3
J 2002	CONNECTOR				B3B-PH-SM3-TB	P0091336		1-	B	e3
J 2004	CONNECTOR				B3B-PH-SM3-TB	P0091336		1-	B	b3
JP2001	WIRE ASSY				BLK 75 (3)/B4	T9318192		1-		
Q 2001	PHOTO COUPLER				TLP281(GB-TP)	G0090037		1-	B	d3
Q 2002	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	B	d3
Q 2003	TRANSISTOR				RT1N241M-T11-1	G3070249		1-	B	d3
Q 2004	IC				M37560EFGP R0677	G1093755		1-	B	c2
Q 2005	IC				PST597CNR	G1092589		1-	B	d2
Q 2007	IC				BR24C32F-E2	G1093517		1-	B	d2
Q 2008	TRANSISTOR				2SC4154-T11-1E	G3341548E		1-	B	a2
Q 2009	TRANSISTOR				CPH6102-TL	G3070223		1-	B	a2
R 2001	CHIP RES.	330	1/16W	5%	RMC1/16 331JATP	J24185331		1-	B	e3
R 2002	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	B	d3
R 2003	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	B	d3
R 2008	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	d3
R 2009	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	a2
R 2010	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	B	a2
R 2011	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	b2
R 2013	CHIP RES.	33k	1/16W	5%	RMC1/16 333JATP	J24185333		1-	B	d3
R 2014	CHIP RES.	47k	1/16W	5%	RMC1/16 473JATP	J24185473		1-	B	b2
R 2015	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	b2
R 2016	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c2
R 2017	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d2
R 2018	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	d3
R 2019	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c2
R 2020	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	c2
R 2022	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	c2
R 2023	CHIP RES.	12k	1/16W	5%	RMC1/16 123JATP	J24185123		1-	B	c2
R 2024	CHIP RES.	15k	1/16W	5%	RMC1/16 153JATP	J24185153		1-	B	c2
R 2025	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	d2
R 2026	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	c2
R 2027	CHIP RES.	390	1/16W	5%	RMC1/16 391JATP	J24185391		1-	B	b2
R 2028	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d2
R 2029	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	c2
R 2030	CHIP RES.	0	1/16W	5%	RMC1/16 000JATP	J24185000		1-	B	b1
R 2033	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2034	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2035	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2036	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2037	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2038	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1

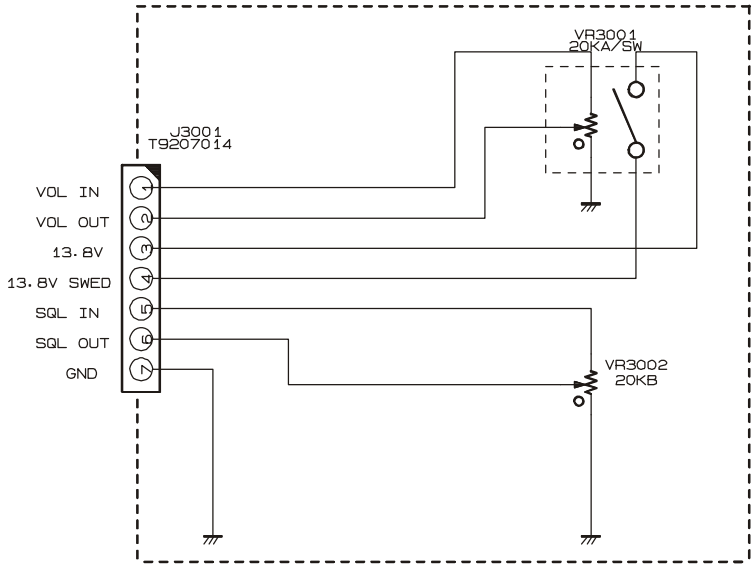
CNTL Unit

Parts List

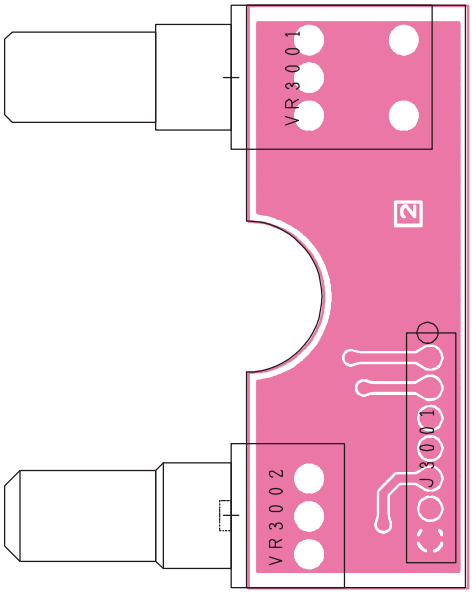
REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
R 2039	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2040	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d1
R 2041	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	d2
R 2042	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	d2
R 2043	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	d2
R 2044	CHIP RES.	6.8k	1/16W	5%	RMC1/16 682JATP	J24185682		1-	B	e2
R 2045	CHIP RES.	15k	1/16W	5%	RMC1/16 153JATP	J24185153		1-	B	c3
R 2046	CHIP RES.	39	1/4W	5%	RMC1/4 390JATP	J24245390		1-	B	b2
R 2047	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	B	d2
R 2048	CHIP RES.	4.7k	1/16W	5%	RMC1/16 472JATP	J24185472		1-	B	d2
R 2049	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	a1
R 2050	CHIP RES.	6.8k	1/16W	5%	RMC1/16 682JATP	J24185682		1-	B	e1
R 2051	CHIP RES.	15k	1/16W	5%	RMC1/16 153JATP	J24185153		1-	B	e1
R 2052	CHIP RES.	100k	1/16W	5%	RMC1/16 104JATP	J24185104		1-	B	a2
R 2053	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	B	a2
R 2054	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	b2
R 2055	CHIP RES.	2.2k	1/16W	5%	RMC1/16 222JATP	J24185222		1-	B	a2
R 2056	CHIP RES.	6.8k	1/16W	5%	RMC1/16 682JATP	J24185682		1-	B	a2
R 2057	CHIP RES.	15k	1/16W	5%	RMC1/16 153JATP	J24185153		1-	B	b3
R 2058	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	B	a2
R 2059	CHIP RES.	220	1/16W	5%	RMC1/16 221JATP	J24185221		1-	B	a2
R 2060	CHIP RES.	470	1/16W	5%	RMC1/16 471JATP	J24185471		1-	B	a2
R 2061	CHIP RES.	120	1/10W	5%	RMC1/10T 121J	J24205121		1-	B	a1
R 2062	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	a2
R 2063	CHIP RES.	470	1/10W	5%	RMC1/10T 471J	J24205471		1-	B	a1
R 2064	CHIP RES.	470	1/10W	5%	RMC1/10T 471J	J24205471		1-	B	a1
R 2065	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	b3
R 2067	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	c2
R 2068	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	d2
R 2070	CHIP RES.	10k	1/16W	5%	RMC1/16 103JATP	J24185103		1-	B	d3
R 2072	CHIP RES.	22k	1/16W	5%	RMC1/16 223JATP	J24185223		1-	B	d2
R 2073	CHIP RES.	100	1/16W	5%	RMC1/16 101JATP	J24185101		1-	B	d2
R 2074	CHIP RES.	0	1/10W	5%	RMC1/10T 000J	J24205000		1-		
X 2001	XTAL SX-1319	9.8304MHz			9.8304MHZ	H0103272		1-	B	d2
	LIGHT GUIDE				(LCD)	RA0418600		1-		
	LCD HOLDER					RA0418800		1-		
	INTER CONNECTOR					RA0418900		1-		

VR Unit

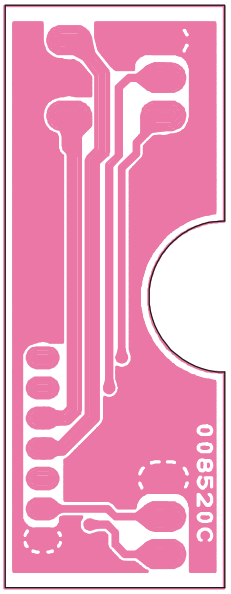
Circuit Diagram



Parts Layout



Side A



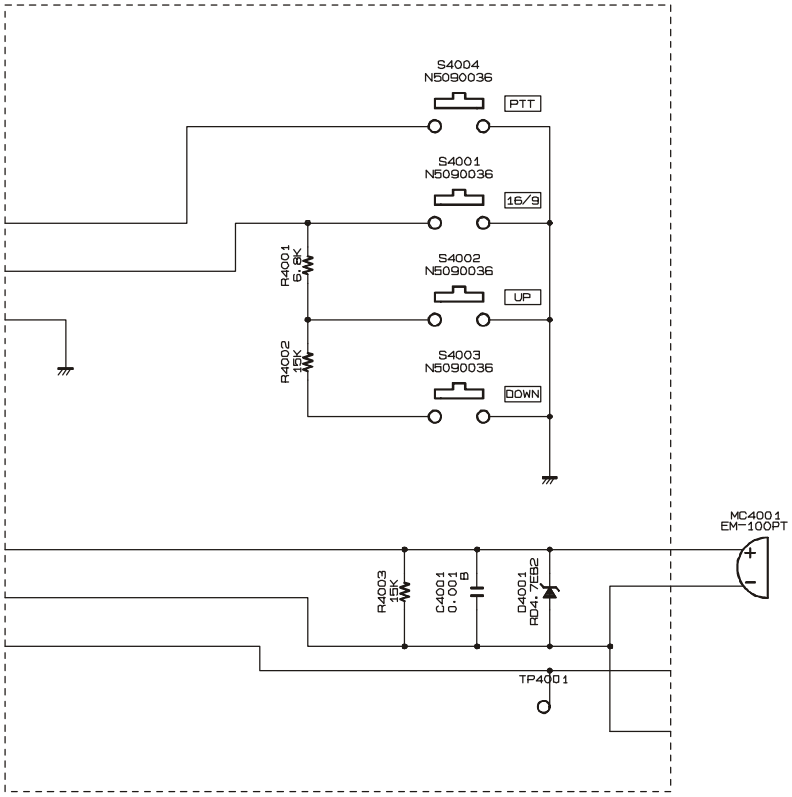
Side B

Parts List

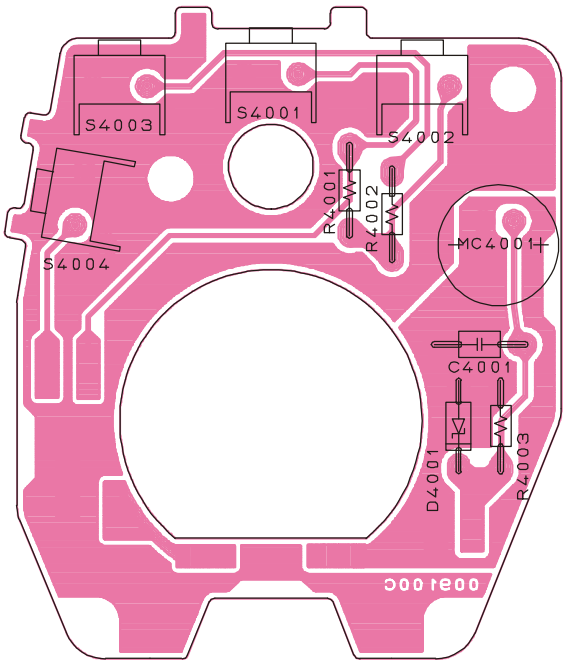
REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
	PCB with Components					CB2157001				
	Printed Circuit Board				AM001N000	FR0085200		1-		
J 3001	WIRE ASSY				AM001N	T9207014		1-	A	
VR3001	POT.				RK0971111 20KA/SW	J60800262		1-	A	
VR3002	POT.				RK0971110 20KB	J60800261		1-	A	

MIC Unit

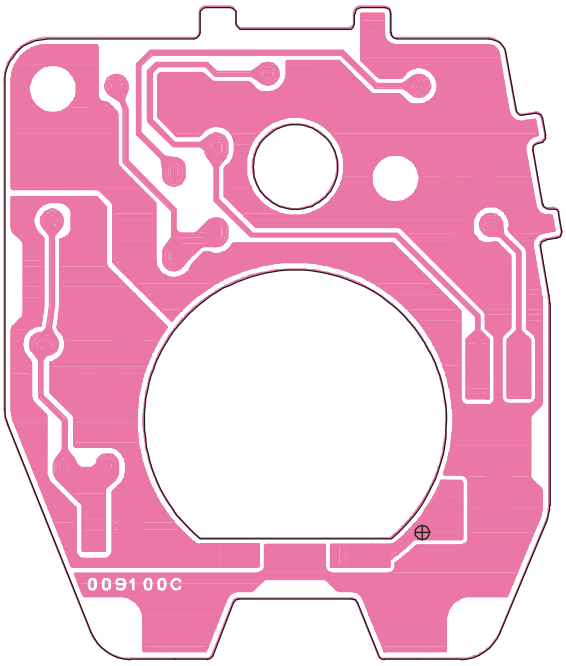
Circuit Diagram



Parts Layout



Side A



Side B

Parts List

REF	DESCRIPTION	VALUE	V/W	TOL.	MFR'S DESIG	VXSTD P/N	VERS.	LOT	SIDE	LAY ADR
C 4001	CERAMIC CAP.	0.001uF	50V	B	UP050B102K-A-B	K28179001		1-	A	
D 4001	DIODE				RD4.7EB2	G2090158		1-	A	
MC4001	MIC. ELEMENT				EM-100PT	M3290029		1-	A	
R 4001	CARBON FILM RES.	6.8k	1/6W	5%	RD16PJ682 6.8K	J01225682		1-	A	
R 4002	CARBON FILM RES.	15k	1/6W	5%	RD16PJ153 15K	J01225153		1-	A	
R 4003	CARBON FILM RES.	15k	1/6W	5%	RD16PJ153 15K	J01225153		1-	A	
S 4001	TACT SWITCH				SKHHLN	N5090036		1-	A	
S 4002	TACT SWITCH				SKHHLN	N5090036		1-	A	
S 4003	TACT SWITCH				SKHHLN	N5090036		1-	A	
S 4004	TACT SWITCH				SKHHLN	N5090036		1-	A	

STANDARD HORIZON

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